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Savings Seen in Fire Ant Control Project

Tests Indicate Less Insecticide Needed

GULFPORT, MISS.—Recent findings at the Southern Plant Pest Contral Region Laboratory here indicate that approximately half the amount of insecticides will be needed in the eradication of the imported fire ant than was originally planned. This will result in a saving of $900,000 this year and $1 million next year.

Based on new test data obtained by the Method Improvement Laboratory in Gulfport, operations now planned will also increase the safety and effectiveness of the program.

C. C. Fancher, supervisor, Southern Plant Pest Control Region, Agricultural Research Service, said: "A saving of about $1 per acre is made possible by this laboratory finding."

In Arkansas, where plans are being made to treat an additional 25,000 acres, 1¼ lb. per acre of the insecticide, heptachlor, will be used, rather than 2 lb., the current standard treatment. The decision to cut the dosage was based on intensive wide-scale tests carried on by the Method Improvement Laboratory of the Plant Pest Control Division.

Mr. Fancher pointed out that infestations have been wiped out on more than one million acres, freeing 78 counties of fire ant depredations since the program started in late 1957. The treatment now being planned in Arkansas will complete eradication of all known infestations in that state.

"All known infestations in North Carolina and South Carolina have already been successfully treated," Mr. Fancher said.

"State and local fire ant committees, organized to assist the state and federal agencies, report a high degree of satisfaction with the program on the part of both farmers and towns-

(Turn to FIRE ANT, page 21)

Ample 1959 Supplies of Insecticides, Fungicides, Weed Killers Predicted

WASHINGTON—Insecticides, fungicides and weed killers are expected to be in ample supply in 1959, according to the "Pesticide Situation for 1958-59" recently issued by the U.S. Department of Agriculture.

The report, which was prepared by Harold H. Shepard, John N. Mahan and Charlotte A. Graham of the Commodity Stabilization Service, Food & Drug Materials Requirements Division, said the early season demand is reported in larger volume than last year. Capacity to produce and formulate pesticides is of such size and adaptability that shortages will be of short duration, and involve mostly those chemicals recently developed.

Production of pesticides in 1958 was well above the 1957 level, the report continued, on the basis of rather limited data available. Increased production of DDT, the aldrin-toxaphene group, and many materials recently in commercial manufacture more than offset the reduced output of benzene hexachloride, copper sulfate, 2,4-D and 2,4,5-T (see Table 1).

The U.S. Tariff Commission, in its annual releases on "Imports of Coal-Tar Products," has reported imports of synthetic organic pesticides as follows:

1954	174,689 lb.
1955	418,920 lb.
1956	408,006 lb.
1957	2,801,572 lb.

Domestic disappearance of chlorinated hydrocarbon insecticides (aldrin, etc.) rose to a new high in 1958 (Table 2). Disappearance of DDT and of benzene hexachloride was somewhat lower than in 1957, and calcium arsenate and rotenone fell markedly. The weed killers, 2,4-D and 2,4,5-T, reached a higher level than the year before. Previous disappearance estimates for these herbicides have been revised on the assumption that the same proportion of 1955-56 and 1956-57 weed killer exports comprised these materials as in 1958. Exports of 2,4-D and 2,4,5-T were in 1958 for the first time reported separately from other herbicides.

Exports of pesticides are now published in more detail than prior to 1958. DDT led in dollar value of exports in 1958, with other "polychlor" insecticides nearly as high. These materials (DDT and the other "polychlors") constituted almost 45% of all pesticide export value for the year. Exports of pesticides in 1958 had a total declared value of $82,067,000, compared to $86,002,000 in 1957 and $81,856,000 in 1956. Exports in the first two months of 1959 had a value of $14,681,000, up 7% over 1958.

Stocks of pesticides on hand at the end of the 1958 growing season were 4% below those at the same date a year earlier, according to the final results of the annual survey of manufacturers' inventories conducted by the USDA in cooperation with the National Agricultural Chemicals Assn. The carryover of primary pesticidal chemicals by the firms specifi-

(Turn to SUPPLIES, page 20)

NAC Executive Asks for Approval Of Amendment to Pesticide Measure

WASHINGTON—"Today's agriculture is largely dependent on agricultural chemicals and agricultural chemical research," stated L. S. Hitchner, executive secretary of the National Agricultural Chemicals Assn., speaking before the House Committee on Agriculture in session here May 21.

This statement was part of Mr. Hitchner's remarks made to the committee at a public hearing in conjunction with H.R. 6436, the proposed amendment to the Federal Insecticide, Fungicide, and Rodenticide Act relating to the inclusion of desiccants, defoliants, plant regulators and nematocides in that act.

"As new products are developed it is desirable that they be regulated in a uniform manner with other agricultural chemicals," continued Mr. Hitchner, "and this bill provides for the inclusion of four categories which have grown in importance to agriculture and to the industry since the passage of the Federal Insecticide, Fungicide, and Rodenticide Act in 1947.

"If these products had been in commercial usage in 1947 they would undoubtedly have been included in the law at that time."

Mr. Hitchner stressed that the legislation would be of benefit to growers by assuring careful review of labeling claims and directions for use by the U.S. Department of Agriculture before the products are offered for sale in interstate commerce. Farmers, too, would be assured that their products would be safe and within the tolerance limits established by the Food and Drug Administration.

Enactment of this legislation "would set a pattern which would enable the states to adopt similar amendments to their pesticide laws," stated Mr. Hitchner. "Many states are awaiting the passage of this legislation so that it can be adopted as a part of a uniform state legislative program."

Mr. Hitchner concluded his statement with the request that careful consideration of the proposed legislation be made by the committee and expressed his hope that the proposed amendment would be passed at this session of Congress.

New Liquid Firm

REYNOLDS, N.D.—Reynolds Liquid Fertilizer Co. has been incorporated, listing $25,000 capitalization, by Maurice Gjelsness, Henry Larson, Leo and Alvis Schultz and Joseph Ackerman, all of Reynolds.

Herbicide Treatment Of Cotton in Delta To Double This Year

MEMPHIS—Herbicidal treatment of cotton in the Mississippi Delta this year is just about double of that last year, according to county agents in that area.

The estimate was made by the Mississippi Employment Security Commission in a study aimed at determining the amount of manual labor that will be needed to produce this year's cotton crop in the state.

More than 190,000 acres received herbicidal treatment last year in the Mississippi Delta. Planters this year indicated that something like 376,000 acres will be similarly treated during this growing season. Practically all of the treatment will be pre-emergent with some trial use expected of post-emergent oils.

R. L. Smith, Madison County agent, is among those reporting increased interest in chemical weed control methods. And he indicates that his county will plant eight to ten thousand acres more cotton this year than last.

The Mississippi Employment Commission forecasts increased cotton acreage for the Delta area. The commission says about 911,000 acres will be put in cotton this season as compared to 755,536 acres last year.

Payment was 1-for-3

Ransoms to Cotton Pests Drop As Growers Use Insecticides

WASHINGTON—Without modern insecticides to combat cotton insects, U.S. growers would pay an annual toll to these pests amounting to almost 1 lb. of seed-cotton for every 3 lb. they produce, the U.S. Department of Agriculture says.

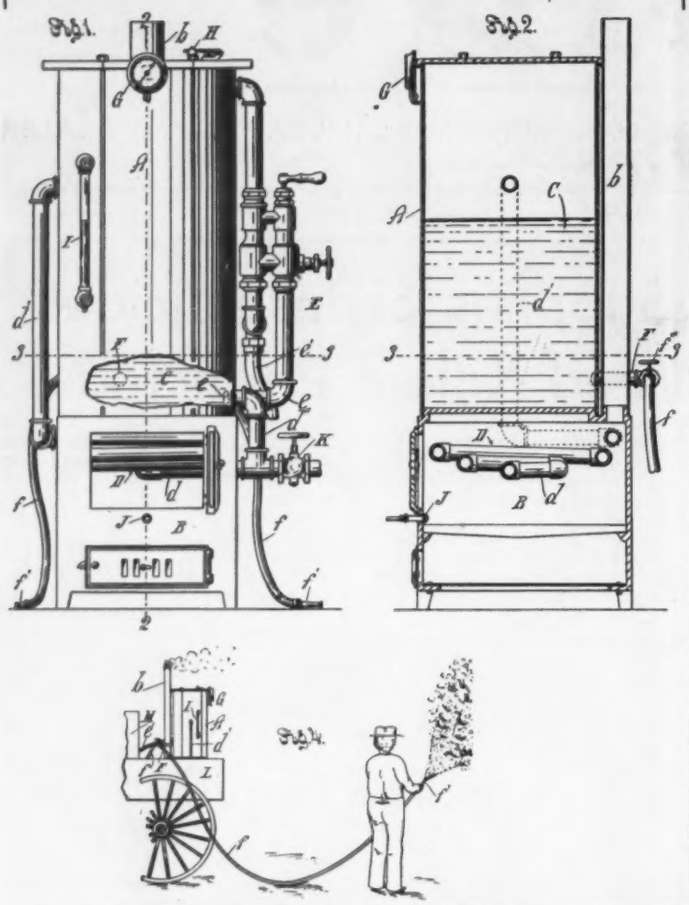
More than 20 years of research by entomologists of USDA's Agricultural Research Service, in cooperation with the Texas Agricultural Experiment Station, show that although the percentage of production increase varies somewhat with the use of insecticides, more cotton has always been produced on treated plots.

Field trials at the ARS Cotton Insects Research Laboratory, Waco, Texas, show an average annual seed-cotton yield of 1,049 lb. per acre from treated plots. This is 309 lb., or 42%, more cotton than the average annual total produced on untreated plots.

The experiments show that, since the advent of modern organic insecticides to control cotton pests, yield gains have averaged 53%. Before

(Turn to RANSOM, page 17)

Saga of Insect Pest Control



The above illustration of the steam-propelled insecticide applicator is from the original drawing appearing in the patent papers taken out by Mr. Steele 60 years ago.

INSECTS have no doubt been the subject of more death plots than any other living group in nature's family. Some devices to bring about their destruction are as simple as pounding together two blocks of wood, with the bug between, while others appear about as complicated as a moon rocket.

In the latter case is a device patented June 20, 1899, by J. B. Steele for "Process of and Apparatus for Applying Insecticides."

Mr. Steele, a resident of California, stated in his patent: "The object of my invention is to provide superior and simpler means than heretofore known for applying insecticides to destroy insects and fungus growth upon trees and other plants. I dispense with the use of any form of pump for pumping the liquid through the spraying-nozzle and apply the insecticide to the tree or plant in a thoroughly-heated state, thereby greatly enhancing the efficacy of the insecticide applied."

He adds that an insecticide, when applied hot, "has a much more deadly effect upon insect life and fungus growth than when applied cold."

A description of the apparatus indicates that the toxicant would be applied through steam pressure. The liquid is forced through the nozzle, and upon escaping from under a pressure greater than the atmosphere, "bursts or explodes and thus heightens the effect of the atomizer or nozzle and at the same time the atomized liquid cools sufficiently, so as not to injure the vegetable life but remains hot enough to have the desired deadly effect upon insect life."

Fuel for the boiler consisted of wood or coal, and a stack was devised to carry away the smoke from the flames.

The invention, being purely an application device, did not state what type or types of toxicant were best to employ.

Adkins-Phelps Names Retail Division Head

NORTH LITTLE ROCK, ARK. — A. Howard Stebbins of Little Rock has been named president of Retail Stores, Inc., retail division of the Adkins-Phelps Seed Co., here, David Phelps, chairman of the board, has announced.

Mr. Phelps said Mr. Stebbins will be in charge of the promotion and expansion of the retail store division. He did not elaborate.

Adkins-Phelps has home offices at 403 Magnolia St. in North Little Rock.

NAMED ASSISTANT DIRECTOR

SACRAMENTO — William J. Kuhrt who began his service with the California Department of Agriculture in 1932 has been named its assistant director succeeding Charles V. Dick who recently was appointed deputy director. Mr. Kuhrt has served as chief of the department's division of marketing since 1955. He is one of the authors of the California Marketing Act under which the state's self help agricultural marketing programs operate. The appointment was announced by W. C. Jacobsen, state director of agriculture.

Women's Demonstration Clubs Help Boost Arkansas County's Soil Testing Interest

WALNUT RIDGE, ARK. — The women of the Lawrence County Home Demonstration clubs are giving soil testing a big push in an attempt to increase the income of their farms.

The unique idea was introduced by Mrs. Turnmire Carroll, county home demonstration agent. Mrs. Carroll said she had hoped that "a few" women might become interested in the idea, but that she was "pleasantly surprised" by the response it was given.

So far, 175 women have brought soil samples into the local extension office. Mrs. Carroll says the farm wives gathered the samples in soil sampling tubes by going into the fields and gardens.

Interest in the soil testing has been increased by a contest in which cash prizes of $25, $15 and $10 were offered to the winners. The awards were offered on the basis of a percentage of the club members in each local club whose farms had soil tested.

Points were also given toward the prizes to clubs whose members got some other farm operators to send in soil samples.

If the families can't afford to meet the fertilizer and lime requirements for their entire farm, operators are being encouraged to fertilize a test area and compare the results with non-fertilized plots.

Extension officials hope the idea will "catch on" over the entire state.

Thimet Vs. Hessian Fly Research Results Told

NEW YORK—For the past three years American Cyanamid Co. scientists have been working on research concerning the use of Thimet for control of the Hessian fly in wheat. According to L. L. Lehritter, Cyanamid technical representative:

"Thimet seed and in-row treatments were evaluated for control of the Hessian fly in several parts of the country. The investigations included spring and winter wheat.

"The results in Michigan indicated that Thimet was effective for systemic control of Hessian fly on winter wheat. Seed treatments were slightly more effective than in-row applications at comparable rates. While reduction in stand and retardation in early growth were present with several treatments, there was generally a complete recovery of the retarded plants, followed by increased vigor. The addition of a fungicide to the seed treatment lessened the phytotoxicity problem and in some instances eliminated the damage. Residues of Thimet decreased from 4.9 ppm 13 days after seeding to below a detectible amount 57 days after planting.

"In Missouri, Thimet has been tried in greenhouse and field tests and has consistently shown high toxicity to the Hessian fly. It has given good control under conditions where fly infestation has been as high as 150 maggots per 100 plants. The test wheat was artificially infested by scattering infested grain stubble in the test plots. In other tests in Missouri, it was indicated that Thimet at the ½ lb. (actual) per acre rate in fertilizer mixtures gave excellent control. These tests had a range of four rates, ½, 1, 2 and 4 lbs. per acre, in fertilizer mixtures where the Thimet was from both 90% emulsifiable concentrate and 44D dust concentration.

"The opinion has been expressed that in Missouri the Hessian fly damage is much greater than is generally recognized, and it has been estimated that the average annual Hessian fly damage to wheat in the U.S. is in the neighborhood of $9 million.

"In some tests it was shown that Thimet-treated plots were usually stunted for the first few weeks, but then recovered and outgrew the checks. This growth stimulation occurred even where insects were not observed. Although no data was available, it was doubtful whether this stimulation was due to Thimet controlling harmful soil insects and soil microorganisms. It is questionable whether Hessian fly control with Thimet could cause the excess growth of wheat as was consistently shown in several tests. As an example, varying yields were cited from 16,000 to 27,000 lb. forage per acre in areas of light Hessian fly infestation. It was also observed that plots in Tennessee which were not infested with insects, nevertheless showed excess growth in the Thimet plots over the untreated checks.

"Thimet tests in Illinois gave Hessian fly control of around 90% at the 0.5 lb. per 100 lb. of seed treatment and 1 lb. per acre granular rates, and 98% at the higher rates (0.75 lb. per 100 lb. seed treatment and 2.0 lb. per acre granular) of both treatments. In one instance, a 70% increase in growth was determined on the 1 lb. granular treatment as compared to double this rate of growth at the 2 lb. rate."

Alabama Fertilizer Meeting Dates, Program Plans Told

AUBURN, ALA.—The annual Alabama Fertilizer Conference for members of the fertilizer industry will be held Aug. 18-19 at the Alabama Polytechnic Institute Agricultural Experiment Station, announced Dr. Howard T. Rogers, head, agronomy and soils department.

Dr. Rogers said the program will include tours to observe results of research on lime and fertilizer use at three outlying units of the experiment station system: North Alabama Horticulture Substation, Cullman; Tennessee Valley Substation, Belle Mina; and Upper Coastal Plain Substation, Winfield. Also scheduled is a tour of the TVA facilities at Wilson Dam where research is in progress on new fertilizer materials and manufacturing processes.

In addition to the tours, experiment station staff members will report on several aspects of fertilizer use that will be of particular interest to the industry representatives, Dr. Rogers pointed out. Included will be such topics as fate of applied nitrogen, factors controlling efficient use of fertilizer, are soil test recommendations adequate for better farmers, and changes in farm practices.

The fertilizer conference is sponsored by the API Agricultural Experiment Station and Extension Service in cooperation with the Alabama Soil Fertility Society.

U.S. Borax Changes Locale Of Development Department

LOS ANGELES — United States Borax & Chemical Corp. announced the relocation of its new products development department to the Anaheim, Cal., laboratories of the company's subsidiary, U. S. Borax Research Corp.

Dr. D. S. Taylor, vice-president and general manager of the Research Corp., made the announcement, and stated that Grover G. Collins has been named manager of the department.

New product development was formerly located in New York where it was attached to the company's sales department; technical services related to existing industrial products will continue to be handled from New York.

Mr. Collins has been a member of the New York department for the past five years, working closely with eastern and midwestern industrial markets.

Statement of Fact

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INSECT, PLANT DISEASE NOTES

Georgia Insect Survey Notes Continued Activity

ATHENS, GA.—Billbugs continue to damage corn in several south Georgia counties. Some farmers have planted three times and are experiencing feeding by the billbug on this planting.

Alfalfa weevil larvae were feeding on the second growth of alfalfa in Putnam County.

The striped blister beetle has heavily infested soybeans and velvetbeans in Tattnall, Evans, Bulloch and Emanuel counties.

Light to moderate infestations of corn earworm were noted in the whorls of corn in Clinch, Ware, Pierce, Tattnall, Evans and Bulloch counties. A moderate infestation of southern cornstalk borer was reported in Clinch County.

The peach drop caused by the plum curculio is over. About 3 479 larvae emerged from a bushel of peach drops picked up in a commercial peach orchard near Athens. This is a 58% infestation and, with the exception of last year, is the heaviest infestation since 1947.

Emergence of the new generation of plum curculio adults from the soil in peach orchards was expected to start the last week in May, and growers were strongly urged to spray each variety of peaches.

May beetle infestations on pecan and oak trees were reported in Meriwether and Muscogee counties.

Moderate to heavy infestations of the Mexican bean beetle on beans in Colquitt, Thomas, Brooks, Lowndes and Tattnall counties were noted.

The striped blister beetle infested tomatoes in Tattnall and Evans counties and cabbage loopers heavily infested cabbage in Colquitt, Thomas, and Brooks counties.

Imported cabbageworm was reported on cabbage in Colquitt, Thomas and Brooks counties.

Infestations, ranging from moderate to heavy, of tobacco budworm on tobacco were reported in Tift, Berrien, Cook, Colquitt, Thomas, Brooks, Lowndes, Lanier, Ware, Wayne, Tattnall, Evans, Bulloch and Emanuel counties.

Thrips and bollworms made a light assault on cotton in some counties.—C. R. Jordan.

Variety of Insects Reported in Kansas

MANHATTAN, KANSAS—Alfalfa was still being bothered by pea aphids in some areas of north central Kansas. Fungus disease has greatly reduced the number of pea aphids in some fields and lady beetle numbers are increasing. Pea aphids are under control by lady beetles and other beneficial insects in the southeast.

Small larvae of variegated cutworms were found in northeast alfalfa fields. This is the cutworm that caused so much damage at the time of the first cutting of alfalfa last year. The insect is also a garden pest as a climbing cutworm.

Greenbugs were abundant in barley fields in Marion and McPherson counties. Fields in northeast Kansas show 10 to 150 greenbugs per foot of row in wheat, barley and oats with most counts below 50 per foot. Parasites are now very abundant in the Manhattan area. All wheat and barley fields in southeast Kansas have many more beneficial insects than greenbugs.

Small corn is being damaged by flea beetles as it emerges in central Kansas.

Grasshoppers have started to hatch in southern and central Kansas. Counts in the southeast are very low (less than one per square yard). Roadsides should be examined very closely for hatching grasshoppers. Early control of grasshoppers is most effective and requires less insecticide per acre.

Harlequin bugs have been reported in different parts of the state. Outbreaks have taken place in fields as well as gardens.—Leroy Peters.

Spittle Bugs Hatch On Iowa Clover, Alfalfa

AMES, IOWA—Spittle bugs nymphs began to hatch recently in Linn County and counties to the east. One field in Linn County averaged one per five stems in the outer part and one per two stems in the center. Other fields averaged one per five stems to one per 10 stems. Red clover had more spittlebugs than alfalfa. Linn, Cedar, Scott, Clinton and counties to the north should be examined for these insects.

An extremely heavy infestation of pea aphids is present in the sandy areas of Black Hawk and Bremer counties. In one field severely stunted alfalfa had more than 100 pea aphids per sweep. The infested fields or areas seemed to be those lowest in fertility. Adjacent fields had one to 10 aphids per sweep.

Fungus-killed aphids were present in all fields—up to 20% of the total population.

A heavy infestation of half-grown clover leaf weevil larvae was reported from Page County. In central Iowa there are one to five small larvae per plant. The threshold justifying treatment is six larvae per plant.

Green aphids were found on oats in a field near Fairfield. The aphids were identified as Toxoptera graminum, the "green bug" that does great damage to wheat and other small grains in Kansas and Oklahoma.—Harold Gunderson.

Colorado Insect Activity Light Due to Cool Weather

FT. COLLINS, COLO.—Insect activity continues generally light, due to relatively cool weather, the Colorado Insect Detection Committee reported recently.

Biggest increase in activity was noted in Weld County. Bait traps col-

"Great, Bill...this SPM

...it took Bill just 15 minutes to review the Sul-Po-Mag program and magnesium story.

Alf Oines (right), and Bob Freske (center), president and vice-president of the Michiana Chemical Co., of Niles, Michigan, will continue to profit from the SPM program. They're shown here with Bill Lane, IMC Potash sales representative.

3. *"Bill, you may recall that we recently used various elements of your program . . . mailers, envelope stuffers . . . and found them very helpful in pushing our own brand. And we may want to take advantage of your imprinting service on some of the other materials."*

4. "Here are examples of our Sul-Po-Mag editorial ads that are being run in farm publications this year. Each ad creates awareness of a need for magnesium . . . tells farmers the name of the product that corrects or prevents it . . . and displays the seal as the sign of Sul-Po-Mag."

Ask your IMC potash representative how the Sul-Po-Mag seal program can help boost your fertilizer sales

From its start several years ago, International's Sul-Po-Mag sales program has rapidly gained momentum. Sul-Po-Mag is well accepted as the ingredient in your mixed fertilizers to prevent and help correct magnesium deficiencies.

The SPM program is supported by full-scale national and local informational and product advertising. Ads written for specific crops are directed to growers throughout the nation. Growers of tobacco, potatoes, fruits and vegetables are all receiving SPM information. These magazine ads are backed up by radio commercials, direct mail, and publicity. Also, a large amount of work is being done to promote magnesium through influence groups such as county agents, vo-ag teachers and agricultural extension people.

The net effect . . . growers and influence groups are becoming more acquainted with the growing problem of magnesium deficiency. Sul-Po-Mag is widely recognized as the best way to combat magnesium shortages. As a result more and more growers are looking for the SPM seal on the mixed fertilizers they buy.

Fertilizer manufacturers using Sul-Po-Mag can take advantage of this promotion by identifying themselves and their products with newspaper ad mats, tags, seal imprints, imprinted direct mail pieces and posters . . . all available at no cost. For full information on the SPM program — and for information on IMC's full line of potash products — contact your International representative or write c/o the address at right.

lected from 56 to 800 adult seed corn maggots, compared with a maximum of only 192 a week earlier.

Alfalfa fields in Rio Grande and Costilla counties have up to four army cutworm larvae per crown. In Larimer County alfalfa fields, the pea aphid count has been from 35 to 50 per 10 sweeps, alfalfa caterpillar one per 10 sweeps and lygus bugs from one to three per 10 sweeps. Larimer County also reported one potato psyllid per 100 sweeps on matrimony vine. This is the first time this year that this insect has appeared in northeastern Colorado.

In Mesa County, the first codling moth was taken in traps, with slow emergence attributed to cool, windy weather. First cover spray should be applied around May 18-20. Alfalfa weevil larvae are appearing on unsprayed fields. Counts range from 80 to 140 in 100 sweeps, but about 50% are parasitized. Pea aphids counts remain light at 20 to 80 per 100 sweeps. Lygus bug count is running five in 100 sweeps. The green peach aphid continues to be a problem to many growers.

In Delta County, the apple aphid has appeared where no early control measures were used. Green peach aphid infestations are fairly heavy with colony counts from a few per tree in some orchards to 20 per tree in others. Control measures have been applied. Alfalfa fields show 5 to 10 lygus bugs per 100 sweeps, with few other insects taken.

In Montrose County, alfalfa fields show relatively light insect populations—10 to 20 pea aphids and 15 to 20 lygus bugs per 100 sweeps.

Curculio Laying Eggs On New Jersey Apples

NEW BRUNSWICK, N.J. — Curculio adults were observed laying eggs on Starr apples in Gloucester County. Mites were generally few and well controlled but some red-banded leaf roller larvae were noted along trunks.

Peaches growing in south Jersey will see the peak of the curculio season soon. No oriental fruit moth activity was observed in young peach plantings.

Strawberries were being damaged by weevils and it appears that populations were causing more concern than for the past several years. Mites were numerous in some strawberry fields and leaf roller eggs were beginning to hatch.

Curculio adults were reported active in Hammonton blueberry fields. The population was light and no egg punctures were observed.

Growers in the Hammonton area were also spraying for Colorado potato beetle which had been observed in tomatoes.

A heavy flight of imported cabbage worm adults was observed in northern New Jersey.—Spencer H. Davis, Jr., and Leland G. Merrill, Jr.

PECANS THREATENED

WAYCROSS, GA.—Pecan growers have been warned that leaf case barriers are eating foliage from pecan trees in this area and thus are seriously threatening this year's crop.

Tom Boland, county agent, said the leaf case barrier insects have defoliated some entire orchards of new leaf growth.

Fire Blight Bacteria Harm Arkansas Fruit

LITTLE ROCK, ARK.—A bacteria causing fire blight has attacked some apple and pear groves in Arkansas, according to M. C. McDaniel, extension plant pathologist.

Mr. McDaniel said the blight has caused the discoloration of leaves and the browning and wilting of blossoms and the tips of twigs. He said it was still too early to determine the full extent of the damage.

The plant pathologist said the bacteria responsible for the blight had wintered in perennial cankers and in beehives. He added that insects, particularly bees, are blamed for spreading the bacteria from tree to tree and into orchards.

Although the major damage has already been done when the symptoms appear, Mr. McDaniel said that orchard operators could apply chemicals to control further outbreaks of the blight.

Apple Maggot Serious Pest of Apple Trees

COLLEGE STATION, S.D. — The fly of the adult apple maggot or "Railroad worm" will probably be hatching out sometime in late June or July. These flies are dark brown, and have light colored markings on the abdomen and wings. Dark colored markings are also on the wings. They are about the same size as a common house fly.

According to Dean Martin, extension horticulturist, these flies begin laying eggs about a week or two after they hatch out. They insert their eggs under the skin of the apple. In a few days the eggs hatch and the larva or maggot tunnels through the fruit. The fruit falls prematurely and the worm crawls from the fruit into the soil where it overwinters.

The maggots especially prefer early maturing sweet or sub-acid apple varieties such as Cortland, Wealthy and Delicious.

Mr. Martin says control measures should be aimed at killing the adult flies before they lay eggs and destroying wormy apples from the previous year.

Mr. Martin said that fruit should not be sprayed less than three weeks from harvest and fruit should be washed thoroughly before using.

Showers Slow Indiana Insect Development

VINCENNES, IND. — Frequent showers have slowed down insect development and, in many instances, prevented growers from spraying orchards.

First scab lesions in the area were noted. Several growers in the Terre Haute, Sullivan and Linton area had enough lesions showing to warrant spraying. Cedar apple galls continued to shoot spores throughout recent weeks.

Red-banded leaf rollers were still noted in some orchards, especially on the tender growth near the trunks.

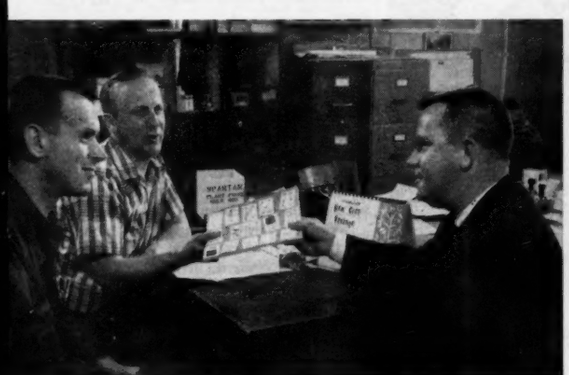
Codling moth activity was slowed down by the wet weather. Only light worm entry was anticipated in this area, but entries ere expected to increase in numbers if the weather warms up.

Curculios were still present in small numbers in commercial peach orchards. New egg laying punctures dropped off recently. In an unsprayed orchard, 117 adults were jarred from five trees.—D. W. Hamilton.

program should really help sales!"

1. "The SPM informational advertising program has made a terrific impact on the market. As an example, we've received requests for product information from thousands of large growers and influence people. It indicates to us that growers are becoming more and more interested in magnesium."

2. "Although our advertising is primarily informational, we use the seal in each ad to acquaint buyers with the sign that identifies fertilizer with Sul-Po-Mag. As you know the SPM seal is available in printing plates, proofs, stickers, or tags so you can take advantage of our Sul-Po-Mag promotion."



5. *"Sounds interesting, Bill . . . but could you leave this brochure with us? We would like to look it over and study your program in detail. I'm sure your materials may fit into our own advertising program."*

6. "Thanks for your time, Alf and Bob. I'll keep you informed on everything new in our program, but if you have any questions or would like to use some materials, just let me know."

By including Sul-Po-Mag as your source of magnesium and sulphate of potash in your mixed fertilizers, you'll profit from this hard-working sales promotion campaign.

HERE'S THE FULL LINE OF IMC POTASH PRODUCTS

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Alabama Soil Fertility Program Moves Ahead at Full Steam, Agronomist Says

AUBURN, ALA. — The Alabama Soil Fertility Program launched earlier this year by the Alabama Agricultural Extension Service is moving ahead at full steam, according to J. C. Lowery, extension agronomist.

Assisting Mr. Lowery with the carrying out of this extensive program are F. E. Boyd and Charlie Summerour, president and secretary of the Alabama Soil Fertility Society. Mr. Boyd and Mr. Summerour have been active in the initial organizational phases of the undertaking and have actively participated in the various county kick-off meetings that have been held.

The program is being carried out in over 20 counties in Alabama. Kick-off meetings have been held at which time the program has been explained to the various farm and business leaders as well as to the local press, radio and TV.

The program has made its impact felt even in the short time it has been in effect. The soil testing laboratory has analyzed over 14,500 samples since January of this year, which is over twice the number of samples handled by the laboratory during the entire year of 1958. This information comes from Dr. R. Dennis Rouse, director of the soil testing laboratory at Auburn. Dr. Rouse, as a result of this program, has been making fertilizer recommendations for maximum crop yields when requested to do so by farmers sending in the soil samples. These recommendations call for applications of considerably more fertilizer than is normally recommended on the basis of a soil test.

The National Plant Food Institute is supporting the Alabama Soil Fertility Program with a grant-in-aid of $2,000.

California Association Moves

SAN MARINO, CAL. — Effective June 1, the California Fertilizer Assn. office will be moved from San Marino to Sacramento, announced Sidney H. Bierly, general manager.

The group's new address will be: California Fertilizer Assn., Room 213, Ochsner Bldg., 719 "K" St., Sacramento.

According to Mr. Bierly, the group's board of directors thought that the staff could better serve the industry from Sacramento, which is the headquarters of the Bureau of Chemistry and of Weights and Measures, and is only 20 miles from the principal campus of the University of California College of Agriculture at Davis.

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AIN'T THAT THE BERRIES . . .

HAMMOND, LA. — Joe Lumino won the Louisiana state strawberry contest when judges voted his yield as the "largest berries ever grown in the state." Mr. Lumino's berries ran eight (8) to the full pint box.

The contest is conducted each April to determine which grower can produce the largest berries of the season. More than 100 avid strawberry growers took part in this year's affair.

The rest of the Louisiana growers, surprised but not discouraged over the size and quality of the winner's berries, are now laying plans for the 1960 contest.

Nine Firms Join NPFI; Board Member Named

WASHINGTON — Nine companies were elected to membership in the National Plant Food Institute and a new board member was named at a meeting of the institute's board of directors here recently.

Maynard C. Wheeler, president of Commercial Solvents Corp., was elected to the board to fill the unexpired term of Sidney Ellis who resigned. Mr. Wheeler's term runs until June 1960.

Companies elected to membership in the institute include: Alliance Fertilizer Corp., Ellerson, Va.; Ashkum Fertilizer Co., Ashkum, Ill.; the Bunker Hill Co., San Francisco 4, Cal.; Dairyland Fertilizers, Inc., Marshall, Wis.; Independent Manufacturing Co., Philadelphia, Pa.; Indian Point Farm Supply Co., Athens, Ill.; Quincy Farm Chemicals, Inc., Quincy, Wash.; Spencer Plant Foods, Inc., Spencer, Iowa, and Welcome Agricultural Chemicals Co., Welcome, Minn.

Poor California Range Conditions Prompt Shift Of Cattle to High Ground

SACRAMENTO—Except for May, 1955, range conditions in California this month are the worst since 1944, according to reports reaching the California Department of Agriculture.

Lower ranges in most instances did not grow more than 2 in. high and cattle and sheep already have been transferred to higher ranges or shipped to feedlots. Their condition was reported generally good, supplemental feeding having been started when it became apparent that the moisture deficiency would result in sparse range feed.

Prospects were generally poor for dryland field crops but good for irrigated crops. Continuing a trend which started many weeks ago, the condition of non-irrigated winter grain crops worsened. High temperatures and drying winds offset gains from sparse recent rains and most grain fields were rapidly approaching dry maturity.

Tomatoes and sugar beets, however, made good growth. Rice seeding is well advanced with good stands noted in early fields.

Ideal pollination weather produced record-breaking sets of peaches and almonds. Peach growers faced a severe thinning problem.

Biennial Thistles Added to Iowa's Noxious Weed List

AMES, IOWA—Starting this summer, all biennial thistles will be included in the Iowa noxious weed list.

This provision was enacted by the 1959 Iowa legislature as an addition to the Iowa weed law and becomes effective July 5, 1959, said E. P. Sylwester, weed specialist at Iowa State College.

Presently, only Canada thistles and bull thistles are included in the weed law. Perennial sow thistle is included but this does not belong to the actual thistle family.

Research in the News

Urea formaldehyde concentrate sprayed in the row at planting time, looks like a practical answer to the potato scab problem with those varieties susceptible to the disease, according to University of Wisconsin scientists.

M. H. Fleischfresser, K. C. Berger, and H. M. Darling say the chemical not only knocks out scab but gives potatoes a fertilizer boost at the same time.

Two years ago the researchers first tested the effects of urea formaldehyde on scab by broadcasting it on a field. They found it did a good job of scab control but was too costly for broadcast applications.

Now it appears that spraying the chemical directly in the row gives good control and helps solve the cost problem at the same time. Scab control is particularly important for the early crop because no popular early variety resists the disease.

In latest field trials, the research men found that 40 gal. an acre of urea formaldehyde solution applied in rows does a better job against scab than 150 gal. broadcast.

In both cases the material boosted yields besides cutting down scab. Reason for this, say the researchers, is probably that the nitrogen carried by the urea and released slowly throughout the growing season increased the yields while the scab control is obtained from the formaldehyde.

As yet the research men haven't determined the minimum amount of urea formaldehyde necessary for good control. They point out that less than 40 gal. an acre may do a good job on some soil types but fail on others. More research is under way to help guide farmers on rates of application.

For row applications of urea formaldehyde a simple spray rig appears to be all the equipment necessary. The researchers say this could be fashioned from a 50 gal. drum fitted with nozzles and hoses and attached to the tractor.

They are now working on a design for an inexpensive tractor-mounted sprayer.

Application calls for directing spray right behind the fertilizer bands. This allows covering discs to seal off the chemical and prevent evaporation.

Cost of urea formaldehyde is not now known but probably will be about $1 a gal. Some of the material will probably be available to dealers this year and more should be on the market later.

However, general distribution will be slow and the material may be hard to buy for a year or so.

The researchers caution early users against heavy applications. They point out that too much of the chemical may be toxic to potato plants.

In the experiments, applications of up to 80 gal. an acre didn't do any damage, but this could be influenced by different soil and growing conditions.

The researchers plan more trials to establish safe levels.

★

With the first few warm days of spring comes the alfalfa weevil, perennial threat to Colorado's alfalfa growers.

Gordon Mickle, Colorado State University extension entomologist, said that the weevil is expected to create more trouble than it has in the past three or four years.

A native of Utah and western Colorado, the insect is a traditional threat to Western Slope alfalfa fields. It is expected to cause widespread damage over northern Colorado this year. Now, Mr. Mickle warns, alfalfa weevils are invading the Arkansas Valley.

Where infestations are severe, the weevils can sharply reduce the alfalfa's feeding value. Feeding on the plant's new growth, the insect will siphon off up to 90% of carotene (vitamin A) content and 75% of the protein.

Control measures may be started as soon as there is a string of warm, sunny days. Sprays at this time will kill overwintering adults before they have a chance to lay eggs.

Mr. Mickle advises using the sprays on warm days—when there is a forecast for several more warm days to follow. Recommendations for control remain the same as they have been for the past few years—¼ lb. of actual heptachlor or dieldrin an acre.

The granular form of these chemicals also is effective.

★

Bonuses of 16 extra bushels of corn an acre came to Ohio farm demonstrators who fertilized their 1958 crop according to soil test recommendations, reports E. P. Reed, Ohio State University extension agronomist.

Corn yields averaged 124 bu. to the acre on fully fertilized fields, compared to 108 bu. receiving average field fertilization, says Mr. Reed, in citing results of 73 demonstrations in 33 Ohio counties.

Ninety-two percent of the individual yields ran from 101 to 161 bu. an acre, Mr. Reed points out.

The high yielding corn on fields fertilized according to soil tests received an average of 93 lb. of nitrogen in addition to the other plant food applied.

The demonstrations indicate that higher planting rates will give bigger yields, where sufficient fertilizer is added, according to Mr. Reed. Corn fields with an 18,000 plant population yielded 140 bu. in nine tests, where the fertilization was adequate, he said. On another nine well fertilized fields with stalk population of 15,200 plants, the corn yielded 116 bu. an acre.

Mr. Reed says there is no single answer to how thick the corn should be planted to produce the highest yields. But on land that has a record of producing 75 to 90 bu. to the acre, he advised farmers to plant about 20,000 seeds. This should leave a stand at harvest time of from 16,000 to 18,000 stalks an acre.

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'Fertilization in the Future' to Be Topic At National Plant Food Institute Meeting

WASHINGTON — Members of the National Plant Food Institute attending the fourth annual convention at the Greenbrier, White Sulphur Springs, W.Va., June 14-17, will hear nationally-known scientific authorities on the subject of "Fertilization in the Future" and members of the staff will present a comprehensive "progress report" covering Institute activities under an expanded program.

Rep. Jamie L. Whitten (D., Miss.), chairman of the House Subcommittee on Agricultural Appropriations, will be the featured speaker on Tuesday morning, June 16. His subject will be "What's Happening in Federal Farm Programs?"

Registration will begin on Sunday, June 14 and the program will get underway Monday morning, June 15.

Richard E. Bennett of Omaha, president of the Institute, will be the first speaker Monday, when he gives a brief progress report on the organization's activities. His talk will be followed by a panel discussion on "NPFI on the Move" with Dr. Russell Coleman, executive vice president of the Institute, as the moderator. Panel speakers will include: Dr. Richard B. Bahme, western regional director, on "Spreading the Word About Fertilizer;" Zenas H. Beers, Midwest regional director, on "Raising Farmers' Sights;" Dr. Samuel L. Tisdale, Southeast regional director, on "The Intensified Approach to the Fertilizer Market," all representing the Institute. Dr. R. A. King, professor, Department of Agricultural Economics, North Carolina State University, Raleigh, and Dr. M. S. Williams, chief agricultural economist for the Institute, will discuss "Predicting Next Year's Fertilizer Sales" as part of the panel.

The annual business meeting of the Institute will follow.

Monday afternoon, June 15 program will be "Fertilization in the Future" with W. R. Allstetter, vice president of the Institute, as moderator and speakers as follows: Dr. L. D. Baver, director, Experiment Station of the Hawaiian Sugar Planters' Assn., Honolulu, on "Scientific Feeding of High Value Crops;" Dr. J. Fielding Reed, southern manager, American Potash Institute, Inc., Atlanta, on "Converting Low Value Crops into High Value Crops;" and Dr. R. J. Hildreth, research coordinator for West Texas, Texas Agricultural Experiment Station, Lubbock, on "Minimizing Weather Risks with Fertilizer."

Tuesday morning, June 16 program will begin with the showing of the Institute's new film, "Cash in on Grass" followed by addresses on "What's Happening Down on the Farm" by Earl F. Crouse, Farm Business Council, Urbana, Ill., and "What's Happening in Federal Farm Programs" by Rep. Whitten.

The annual banquet of the Institute will be held on Tuesday evening, at which winners in the "Soil Builders Award for Editors" contest will receive scrolls.

Officials of the Institute estimate attendance at the convention will approximate 1,000 persons consisting of members and prominent agricultural leaders in business, government and communications.

Decreased Flow of Treated Seeds May Cause Reduced Stands

WASHINGTON — Decreased flow of seeds through drills (planters) rather than reduced germination may be the cause of smaller crop stands grown from seeds treated with insecticides, the U.S. Department of Agriculture has reported.

Experiments conducted by USDA's Agricultural Research Service with the cooperation of the Oklahoma Agricultural Experiment Station revealed that treatment causes a reduction in the rate of flow through the drills, resulting in fewer seeds per acre being planted.

Farmers are advised to adjust seed drills to allow for the decrease in seed flow, and to enlarge the opening in the seed hopper floor to increase the flow of seeds through the drills.

The cooperating scientists treated wheat seed with aldrin, dieldrin and Thimet insecticides to control brown wheat mites and false wireworms. Laboratory tests of treated and untreated seed showed no difference in the rate of germination.

The scientists found the test weight of treated seed to be between 2 and 3 lb. less per bushel than the weight of untreated seed. They also found that the kind and amount of insecticide used to coat the seeds affected the rate of seed flow. The seed flow variation obtained under different rates of treatment ranged from 9 to 21% below that of untreated seed.

Greenbugs Make Showing On Missouri Small Grains

COLUMBIA, MO.—Severe damage from greenbugs began showing up on spring oats. In most instances, the heaviest injury has been in the latest sown fields, but earlier oats were also showing the effects.

Pea aphids are still heavy on some alfalfa, and cool weather is in the insects' favor. There is little chance of established stands being excessively injured, but new legume seedings should be checked.

Variegated cutworms are causing heavy damage to new growth in alfalfa fields. The worst injury is in the bootheel counties, but smaller cutworms are also being found in central and northern counties. It is too early to tell how much of a problem these smaller worms will be, but injury is severe in many southeastern fields.

A large percentage of the better barley in the southeastern counties, and some of the wheat, has been sprayed for armyworms. Small worms are being found in grain and grass crops in the central section of the state, but so far injury is light. A close watch should be maintained for the next few weeks.

Hornfly numbers are still low.—George W. Thomas.

TRANSFERS TO OHIO

WOOSTER, OHIO—Dr. Loyal F. Bauman has transferred from Georgia to pursue corn breeding studies at the Ohio Agricultural Experiment Station. He takes over in the spot left vacant by the recent resignation of Glen H. Stringfield who held the post for 35 years.

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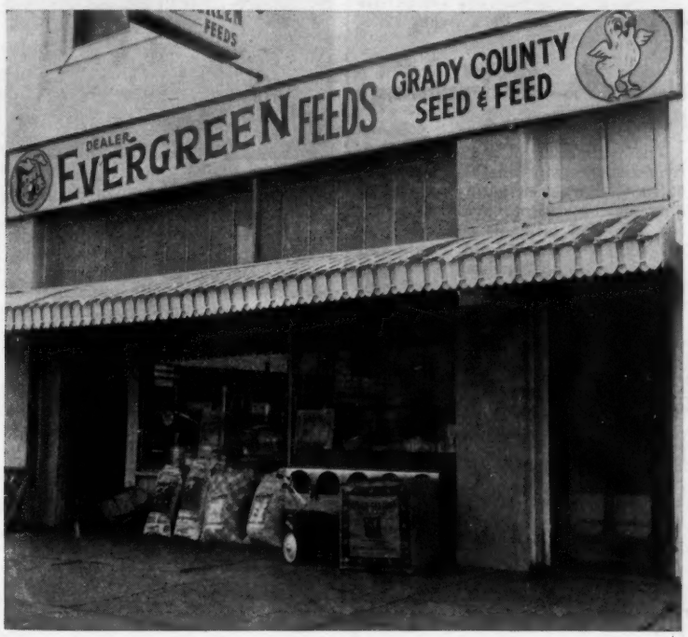


THE FRONT OF THE Grady County Feed & Seed Store in Chickasha, Okla., is kept neat and well displayed. "Displays add a great deal to our sales," says Joe Walter Burtschi, owner.

Supplier, Dealer Form Merchandising Team

"Why buck the competition line all by myself," asked Joe Walter Burtschi, partner and manager of the Grady County Feed & Seed Store in Chickasha, Okla., "when I can have my supplier run interference for me?" Mr. Burtschi figures his supplier has the resources and a streamlined program for putting his product lines over with customers and uses everything available to him. This merchant credits this policy as one of the chief reasons he shows an increase in volume each year.

"You can see a lot of billboards in my trade territory," observed Mr. Burtschi, "that advertise the products I handle. These billboards are in strategic spots where highway traffic is the greatest and they are kept up. My supplier sponsors them and I have everything to gain and nothing to lose by asking for as many billboards as possible. There is a fundamental law of human behavior that if people see your store name enough and tie it in with their farm needs you will eventually get their business. I find this to be the case with this medium."

On the same basis the firm ties in with farm programs on radio stations KWTV and KWCD in Oklahoma City, Okla. The cost would be prohibitive, points out Mr. Burtschi, if he had to bear the expense by himself. As it is, a daily, hard-hitting program on the weather and on farm reports blankets a large listening audience for this firm.

Mr. Burtschi also says, "I think a lot of farm stores just throw literature they receive away without looking at it. At least I see many an unopened large brown envelope or other advertising wrapping in waste baskets in other stores. The way I look at it, a circular, folder, pamphlet, or catalog has been prepared at a lot of expense to the manufacturer. It represents research and tests.

"In my store literature from my supplier gets a good going over from me. You will find it on the counter, in easy reach of the customer. You never know what facet of information or what illustration will be just the thing a person is looking for. Psychology again shows up here. If you honestly believe in the product you sell and know what the literature has to offer, the customer can tell it. In many cases it leads to sales—either right at the counter or a day or two later."

Located in the south central part of the state on U.S. Highways 81, 62, and 277, Chickasha is a town of 20,000 that enjoys a solid agricultural economy.

Joe has a silent partner, his sister, Cecelia Burtschi. His wife also assists him in operation of the store and has charge of the books. The neat brick

(Turn to **FORM TEAM**, page 16)

MR. & MRS. Joe Walter Burtschi run the Grady County Feed & Seed Store in Chickasha, Okla. Mrs. Burtschi is in charge of bookkeeping.

OVER THE COUNTER

By Emmet J. Hoffman
Croplife Marketing Editor

One engaged in the business of selling supplies to the farmer hardly needs a reminder that the agriculture picture changes rapidly. Chemical control of weeds formerly was viewed suspiciously by farmers. Old products have been improved. The government has assumed a major role in the grain marketing and storage field. Federal farm programs almost daily affect farm crops and livestock production. These in turn affect the dealer's sales of seeds, feeds and fertilizer. And one thing is certain, there are more changes to come.

It is the job of the farm store manager, if he wants to be successful and serve his customer well, to be informed of the new methods, products and regulations that affect his customer. In visits with farm store owners across the U.S., it appears that there is a direct correlation between the obviously successful dealer and his product and customer knowledge, between the money-maker and the degree he serves his customers.

"We know that about 85% of the information needed for the use of new products or equipment is secured at the time of purchase from the retail dealer," said George G. Greenleaf, coordinator, elevator and farm supply training, Michigan State University, at a recent meeting. What a responsibility and opportunity is presented the dealer! It is apparent that an uninformed dealer cannot provide the information needed to make a customer satisfied.

Observations of successful farm store operations lend credence to the theory that a poorly informed dealer can hurt a farm community and that an intelligent, informed farm store manager can make his community more prosperous.

Advertising Action

Regardless of the product or service advertised, every advertisement

(Turn to **OVER THE COUNTER**, page 13)

Farmers' Need for Fertilizer Information Adds Profits for 'Educated' Texas Firm

Farmers in West Texas' lush irrigated section are depending more and more on fertilizer and insecticides to boost yields and nearly all of them want advice and help. And to get this help, many of them are going to the fertilizer dealer.

Lester Neimeyer, owner of the Neimeyer Feed & Seed Co., Lamesa, Texas, says nearly all cotton farmers ask what kind to use, how much to apply and how it should be put on.

"It's up to the dealer to get this information," says Mr. Neimeyer. "For instance, I attended a chemical meeting at Lubbock and heard some of the speakers say that potash was possibly needed in the Lamesa area. I contacted two of the experts and learned all I could about it. I came away convinced that our potash in some of the older irrigated soils is becoming inadequate."

Mr. Neimeyer carried this information back to all his customers, contacted his manufacturer's representative and laid in a stock of 10-20-10. He also bought some 5-10-5, with the idea of having the farmer follow this with nitrogen sidedressing.

"We sold about 400 tons of fertilizer and much of it contained potash."

Mr. Neimeyer has never gotten involved in the practice of price cutting. He stocks one of the leading brands of fertilizer, gets a fair price for it and tries to make up this price differential in service to customers.

He has one broadcast machine which he rents to farmers for 25¢ an acre, but does not intend to get into the rental equipment business.

In addition to fertilizer sales, other farm chemical business has been profitable. Last year he sold $18,000 worth of insecticides to cotton farmers in Dawson and adjoining counties.

"I made $1,500 net profit on it," he said, "which may not seem like much. Yet each one of those farmers either was or may become a customer for our certified seed, which is the main business of the store."

Mr. Neimeyer says that service is the keynote to any farm type business nowadays. Farmers are asking more questions than ever before. They need the latest information on a fast-changing industry, and particularly about farm chemicals.

"If the dealer doesn't know the answers, he had better learn them," said Mr. Neimeyer in conclusion. "Otherwise the farmer will go elsewhere. And instead of losing just the fertilizer account, you may lose all his business."

WHAT'S NEW

IN PRODUCTS · SERVICES · LITERATURE

To obtain more information about items mentioned in this department simply: (1) Clip out the entire coupon in the lower corner of this page. (2) Circle the numbers of the items of which you want more information. Fill in the name and address portions. (3) Fold the coupon double with the return address portion on the outside and fasten the edges with a staple, cellophane tape or glue. (4) Drop in the mail box.

No. 6912—Spreader Literature

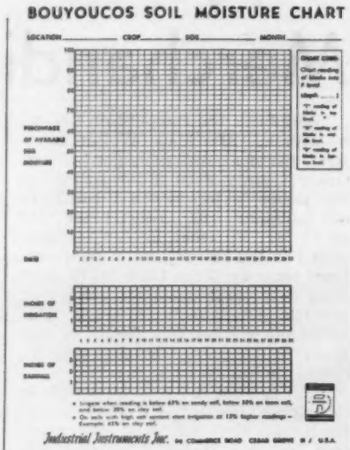
Literature on the "New Leader L-32S" engine driven combination lime and fertilizer spreader is available from Highway Equipment Co. The illustrated brochure contains specifications, construction features, detailed drawings of various components of the spreader and operating information. A section on optional attachments, with appropriate illustrations, is also included. For copies of the literature, check No. 6912 on the coupon and mail to this publication.

No. 6913—Folder on Miticide

A revised folder on "Genite," a miticide which is said to kill plant mites and their eggs in one spray, is available from Allied Chemical. The folder contains spreading information, and describes features of the product. Economics of using the spray are discussed and general use information is given. For copies, check No. 6913 on the coupon and mail to this publication.

No. 6914—Soil Moisture Charts

Industrial Instruments, Inc., announces the availability of a pad of soil moisture charts for plotting measurements obtained for Bouyoucos Soil Moisture Meters and Blocks. Each chart provides room for recording percentage of soil moisture for a 31 day period as well as separate



charts for indicating inches of irrigation and inches of rainfall. A free pad of these charts is available to Bouyoucos meter users. Check No. 6914 on the coupon and mail to this publication.

No. 6915—Folder on Weed Killer

A folder is now available on "Urox" weed killer from Allied Chemical. According to the folder the product can be sprinkled or spread on soil to kill all weed growth in non-crop areas. The folder is illustrated with photos showing some of the weed control results that can be expected. General use information and application are included. For copies, check No. 6915 on the coupon and mail to this publication.

No. 7499—Recirculating Fan

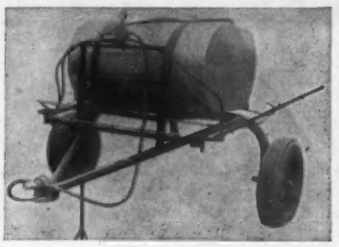
The availability of a self-contained, recirculating fan for ventilation of out-door storage structures has been announced by Sprout, Waldron & Co., Inc. The fan is small and compact, the company stated, and is powered by a 1 h.p. totally enclosed 3450 rpm. motor. A weighed check valve prevents material from being blown out through the fan and into the filter when the storage is being filled. For details, check No. 7499 on the coupon and mail to this publication.

Also Available

The following items have appeared in previous issues of Croplife. They are reprinted to help keep dealers on the regional circulation plan informed of "What's New."

No. 6902—Trailer Sprayer

A new "MinIowa" model dual X15 trailer sprayer is being introduced by Ferguson Enterprises. The unit, which incorporates a multiple assembly design, was developed to permit the boom to be mounted either in front or behind the axle, subject to need or preference. The multiple assembly feature also makes it possible



to mount the tank crosswise or lengthwise without changing the cradle assembly, the company says. The company offers a choice of four tank models with the basic trailer. Boom assemblies are available in six and eight row widths, in either aluminum or PVC rigid plastic pipe laid in and reinforced by steel angle iron. For details, check No. 6902 on the coupon and mail to this publication.

No. 6910—Peanut Fungicide Guide

A Terraclor application guide for peanuts giving detailed information on the use of this soil fungicide is now being distributed by Olin Mathieson Chemical Corp. The four-page, illustrated guide is designed to help control Southern blight. It contains a compilation of work done by Olin Mathieson fieldmen, federal and state research personnel and growers. For more information check No. 6910 on the coupon and mail.

No. 6908—Light-Weight Hand Pump

A light-weight hand pump designed to handle liquid fertilizers, tractor fuels, gasoline, lubricating oils and other solutions, has been announced

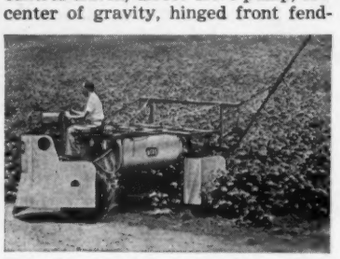
by the Wayne Pump Co. Called DD-1, the pump can be supplied with any required accessories, including regular or no-drip spouts, pedestals, suction pipes, hoses, meters and check valves. Two special composition diaphragms and two sets of reinforced valves provide pumping on both push and pull strokes. Delivery is about 20 gal. per 110 strokes. The stainless steel shaft operates in a heavy-duty nylon bearing, which is isolated from liquid flow by the double internal diaphragm. The company lists ease of cleaning as one of the unit's major features. For details, check No. 6908 on the coupon and mail.

No. 6907—Organic Fungicide

Information about "Dyrene," an organic fungicide and its use on celery, has been made available by Chemagro Corp. Results of six years of research and testing of the product are given. Other crops on which it is effective are also discussed. Recommendations as to use, spraying techniques and application instructions are listed. For details, check No. 6907 on the coupon and mail to this publication.

No. 6904—High Clearance Sprayer

A new model of the Blue Boy high clearance sprayer has been announced by John Blue Co., Inc. Features of the sprayer include adjustable rear tread, high safety rating in that the driver turns with the front wheel, 58 in. standard clearance with 72 in. clearance optional, positive foot control clutch, direct drive pump, low center of gravity, hinged front fend-



ers for easy clutch and drive chain adjustment, adjustable height boom and adaptability to dusting, spraying and defoliating, company literature said. Details can be secured by checking No. 6904 on the coupon and mailing to this publication.

No. 6901—Spreader Literature

Literature describing the Challenger lime and fertilizer spreader has been published by the manufacturer, Highway Equipment Co. The Challenger is a positive feed, self-unloading lime and fertilizer spreader which offers either a single spinner with an 18 in. conveyor or twin spinners with a 24 in. conveyor. For copies, check No. 6901 on the coupon and mail.

No. 6906—Bean Insecticide Booklet

Use of Sevin insecticide on beans is described in a folder available

Send me information on the items marked:

- ☐ No. 6901—Spreader Literature
- ☐ No. 6902—Trailer Sprayer
- ☐ No. 6903—Film on Phosphate
- ☐ No. 6904—High Clearance Sprayer
- ☐ No. 6905—Chemicals Display Rack
- ☐ No. 6906—Bean Insecticide Booklet
- ☐ No. 6907—Organic Fungicide
- ☐ No. 6908—Light-Weight Hand Pump
- ☐ No. 6909—Mobile Power Sprayer
- ☐ No. 6910—Peanut Fungicide Guide
- ☐ No. 6911—Fruit Growers Chart
- ☐ No. 6912—Spreader Literature
- ☐ No. 6913—Folder on Miticide
- ☐ No. 6914—Soils Moisture Chart
- ☐ No. 6915—Folder on Weed Killer
- ☐ No. 7499—Recirculating Fan

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from Union Carbide Chemicals Co., Division of Union Carbide Corp. Features of the insecticide are outlined in the booklet and application rates and directions are included. Copies of the folder designated F-40471, can be obtained by checking No. 6906 on the coupon and mailing to this publication.

No. 6911—Fruit Grower's Chart

Colloidal Products Corp. has announced the availability of the Western Fruit Grower's "Compatability

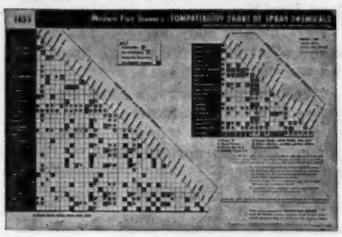


Chart of Spray Materials," prepared by Dr. Harold F. Madsen of the University of California and Dr. Stanley C. Hoyt of Washington State College. The chart is printed on a plastic card, in color and is shirt pocket size. Copies can be obtained by checking No. 6911 on the coupon and mailing to this publication.

No. 6905—Chemicals Display Rack

A wire display rack, filled with products, is being distributed by the Douglas Chemical Co. as part of a farm grain sanitation program to help farmers keep their on-the-farm stored grain free of damaging insects. The rack, which stands 40-in. high, is topped by a three color, 8-in. sign. The width of the stand is 29 in. The purpose, according to company literature, is to have dealers join the Douglas 1959 farm grain sanitation program. More information is available by checking No. 6905 on the coupon and mailing to this publication.

No. 6909—Mobile Power Sprayer

A mobile power sprayer that produces a steady flow instead of pulsating streams is now available from the John Bean Division of Food Machinery & Chemical Corp. The unit, called the Trojan, sprays insecticides, liquid fertilizers, and root-feed compounds. Feature of the sprayer is a centrifugal pump of which all major parts are made from a glass-fiber reinforced plastic, Thermaflow 100, developed by Atlas Powder Co. The pump has only one moving part. The unit delivers steady pressure at any engine speed, the company noted, and is driven by a 2½ h.p. gasoline engine. It can deliver up to 3 gal. a minute at 60 lb. per sq. in. of pressure. The stream will reach a height

of 30 ft. A 15-ft. hose is designed for high-pressure corrosion-resistant service. Check No. 6909 and mail for details.

No. 6903—Film on Phosphate

"Mountain of Life" is the title of a 24-minute motion picture in full sound and color telling the story of phosphate fertilizer, that is being offered to groups throughout the west who are interested in agriculture. The film was produced by Western Phosphates, Inc., manufacturer of Anchor Brand fertilizers, and Wilson & Geo. Meyer & Co., Intermountain, Western Phosphates' sales agent. The 16-mm film describes the role of phosphate fertilizers in farming and illustrates mining and processing of phosphate. Highlights include actual fertilizer field studies. Check No. 6903 on the coupon and mail to this publication for details.

JET INJECTION

URBANA, ILL.—Dean Hopkins and George E. Pickard, University of Illinois agricultural engineers, are working on the problems of anhydrous ammonia injection. They are designing various jet nozzles and pressure tanks to work on present tractors and farm equipment. They report that the experiments are set up over the next two or three years.

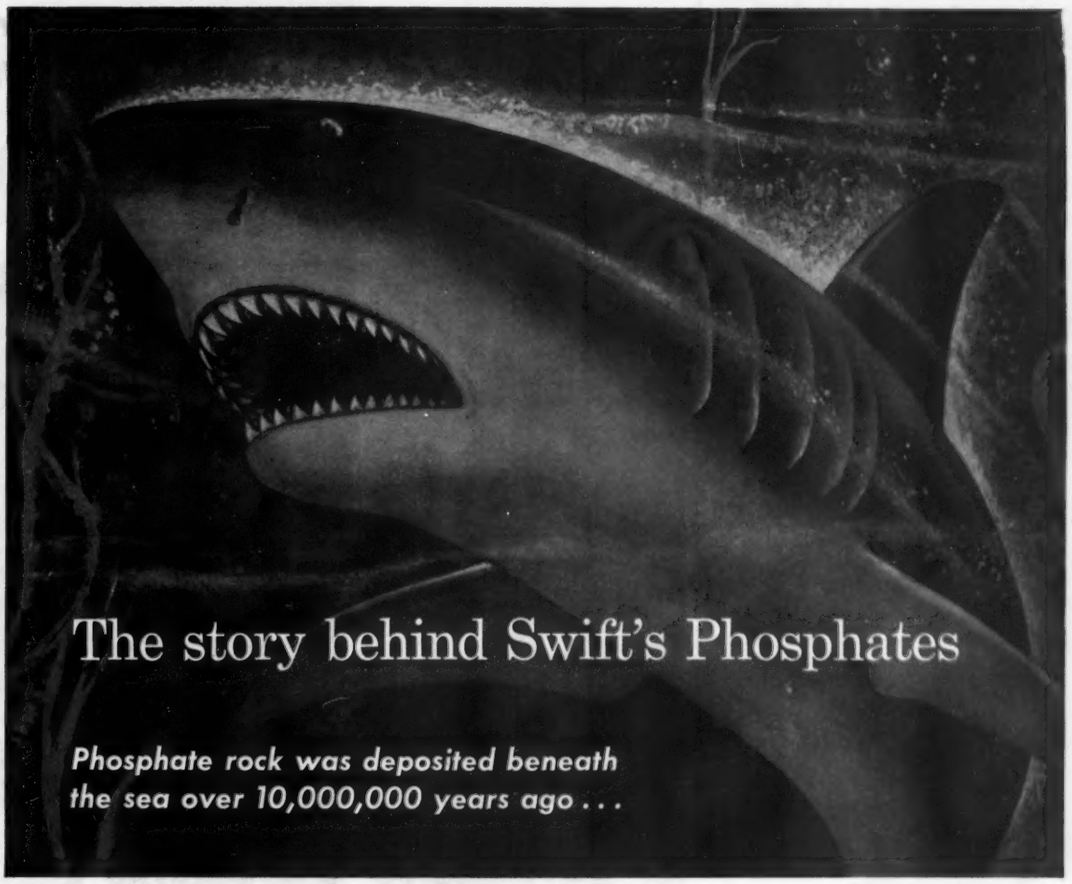
Cherry Worm Expected

WEISER, IDAHO—Growers who have cherry trees will want to be prepared to fight the cherry worm again if they expect fruit to be free of larvae, according to Frank E. Hackler, Washington County extension agent.

The area will have some sticky boards again at strategic spots here to watch for the emergence of the fly, generally around the middle of May, he said. At the fly's appearance, the spray program should start immediately, as it takes from five to seven sprays at seven to 10 day intervals to control the pest, Mr. Hackler added.

NEW SECRETARY-TREASURER

TUCSON, ARIZ.—Robert Matlock, associated with the Tucson Fertilizer Co., has been elected secretary-treasurer of the Tucson Nurserymen's Assn. He succeeds Robert Hoose who resigned. Mr. Matlock will also serve as ex-officio member of the board.



Today, Swift technology transforms it into forms you can use most profitably

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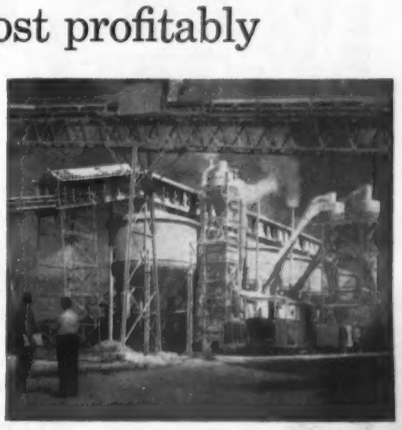
Before you settle on your source of phosphate rock, ground phosphate rock or triple superphosphate, ask to have a Swift Phosphate Center representative outline what extra care can mean to you. Or write for illustrated brochure to SWIFT & COMPANY, Phosphate Center, Bartow, Florida.



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OSCAR & PAT

By AL P. NELSON
Croplife Special Writer

It was a warm May day as Pat McGillicuddy drove in at the farm yard of Phil Butzer. He noticed the big orange colored tractor standing by the machine shed and headed his car that way.

Pat found lanky Phil Butzer working on a tractor part in his farm workshop at one end of the machine shed. The lean, big handed farmer looked up coolly as Pat said cheerily, "Hi, Phil."

"Hi," said Butzer and then turned his attention to the piece of iron in the vise before him.

A little rebuffed by this reception, Pat tried again. "Nice weather for finishin' up seeding," he offered.

Phil Butzer grunted, but said nothing intelligible.

This time Pat coughed. He was used to contacting all types of customers. He knew they had good days and also bad days; maybe Butzer was having a bad day.

"It won't be long now before you'll be thinking about side dessing your corn, Phil," Pat said friendly like. "If you want to give me an anhydrous order, we can schedule the job and give you fast service."

Phil Butzer looked up. His attitude was decidedly not friendly. "Pat, you just better go peddle your palaver elsewhere. I'm not buying anything more from you."

Pat's jaw dropped slightly. Phil Butzer was one of his best customers over the years. What had happened?

"What have we done wrong?" he asked.

"Just about everything," said Butzer, inspecting the iron bar as if it were more important than any other business at hand. "Didn't you tell me that I could have three months to pay for that fertilizer I ordered in February?"

"Yes, I did."

Phil Butzer grunted. "And I bought more fertilizer than I usually do because you talked me into a higher rate of fertilization. Right?"

Pat nodded. "I didn't talk you into it. I showed you where others are getting better results with heavier fertilization, and I said I thought you could, too, and that it would be a good idea to keep track of costs, tonnages and yields."

"Well, it's the same thing," Butzer said practically.

"I won't argue with you, if that's the way you want it," Pat said with a grin.

"Then why in hell did you send me a bill at the end of 60 days telling me my fertilizer purchase is overdue and I had better pay up?"

"I didn't send any such bill," Pat said unbelievingly.

"The heck you didn't. Come on into the house and I'll show you."

Puzzled Pat followed the belligerent Butzer.

"Watch out for rolling pins when you step into the kitchen," cautioned Butzer. "My old lady is mad as a hen about this, too."

"Okay," said Pat. "If I have done something wrong I'll take my punishment. I've got accident insurance. But you've got to show me."

Mrs. Butzer, a plump, wide faced woman was in the kitchen when the two entered. However, when she saw who her husband's visitor was, she stuck up her nose, wiped her dishwater hands on her apron and marched into the next room, without a greeting.

"I told you," Butzer said, "your name is mud around here."

He opened a cupboard door and reached for some papers. "Ma," he finally called, "where's that love letter from Schoenfeld and McGillicuddy?"

"It's there somewhere," called his wife. "Why bother to show it to him? We're busy today."

Pat winced, but Butzer searched some more. "I believe in looking at dead horses," he said.

Finally he found the bill. It was on a long sheet of grey paper. He handed it to Pat. "You fellows are nice guys," he said bitterly.

Pat looked at the note. The imprint at the top—which had been x-ed out read "Perkins & Jones Funeral Home, Palmyra, Iowa." Then the note stated the amount of the fertilizer bill and below it was typed, "This bill is way overdue. What's holding up payment? Don't make us the last to get paid on your list. Schoenfeld & McGillicuddy."

Pat stared at the note. "Oscar!" he blurted.

"That I believe," Butzer said. "But you're his partner. You must see all letters before they go out. You knew he sent this."

"I swear by all the snakes in Ireland that I didn't know it," Pat pleaded. "I told Oscar you had 90 days on this when I turned in the order. But apparently he didn't listen."

Butzer growled. "And this funeral parlor paper he used to send the bill. Does he mean to infer that I am a dead-beat?"

Pat looked bewildered. "I don't know what he meant, but I know he did wrong."

"Are you fellows so hard up for paper that Oscar has to go around to funeral parlors when relatives get buried and appropriate some of their surplus paper?"

"No," Pat said firmly. "Oscar ir-

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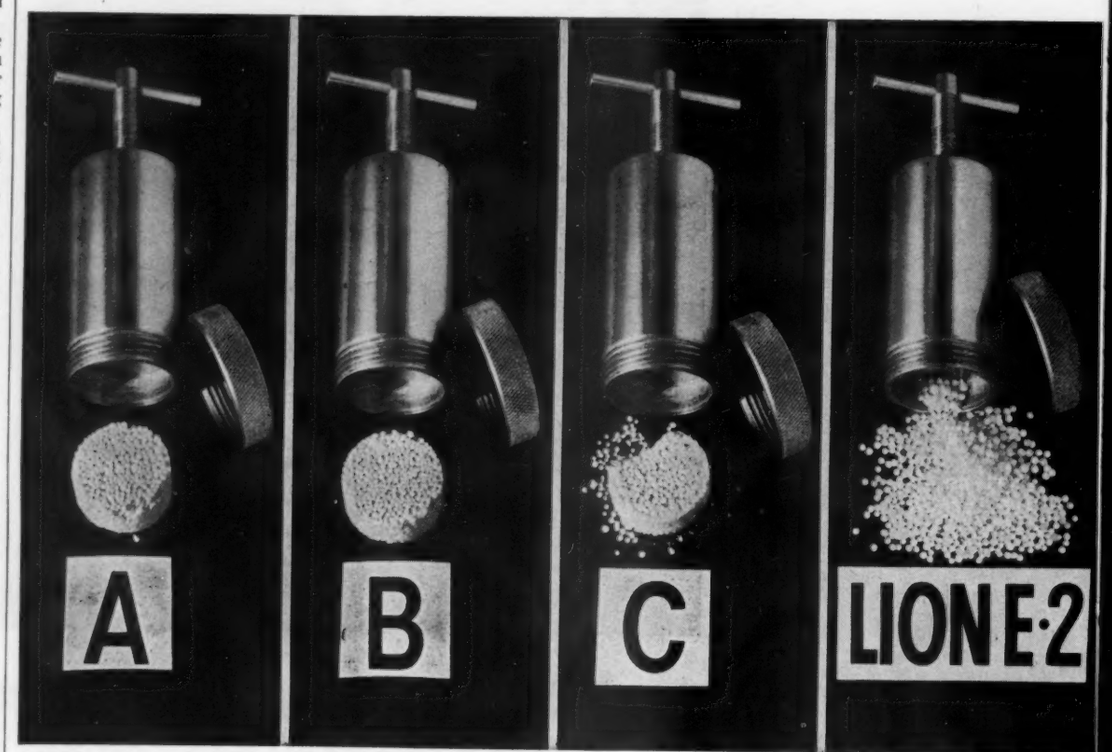

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New Lion E-2 is the first truly non-caking ammonium nitrate. Lion E-2 was developed by Monsanto scientists seeking to end one of the major problems plaguing you and your customers: fertilizer caking. Tested in the field under all extremes of temperature and humidity, Lion E-2 just wouldn't cake.

New Lion E-2 won't gum up, clog or bridge in your customer's spreader. The uniform prills are 50% harder . . . free of irritating dust and fines. They won't break down, crumble or cake either in shipment or storage.

New Lion E-2 takes 20% less of your storage space because it's super-dense. It has the greatest density of any ammonium nitrate made today. Lion E-2 saves your time, storage space, and makes your handling job easier.

New Lion E-2 lengthens your selling season because it's storage-stable. It is not readily affected by temperature changes or humidity. Your customers can buy any time and store safely until used. LION E-2 may well prove your big *year-round* volume builder!

Lion E-2 is guaranteed not to cake in the bag in your place or on your customers' farms. From all angles, Lion E-2 is the superior-quality ammonium nitrate . . . yet it sells at ordinary ammonium nitrate prices. Sell your customers the best . . . you'll keep old customers coming back and gain many more new ones who want the best: new Lion E-2

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ritates me no end, I'll admit, but he is honest. He wouldn't steal anything. Most likely he picked up this paper at a sale—to use for notepaper and then decided to economize and use it for business stationery."

Butzer frowned. "You ought to step on him. Shouldn't let him insult us like this."

Pat sighed. "How can I stop him? I want to buy him out but he wants too much for his interest. I'm stuck with him, just like a fellow can be stuck with a relative he doesn't want. You have to live with your problems."

Butzer smiled slightly. "Well, I figured it must be Oscar did it, but Hannah and me was mad at you, too. We figured you knew about it. Tell me, is it true what they say about your Comeback Customers Day Gripe Barrel?"

"What do they say?"

"Well," Butzer said slowly, "you asked Comeback Customers to drop in unsigned notes into the Gripe Barrel why they stopped buying at your store. You had 97 drop-in letters, I understand."

"Yes."

"And is it true that 96 of them said 'Oscar'?"

Pat looked embarrassed. "Well, even though I don't agree with Oscar on lots of things, I would never have volunteered that information. But you asked me, and I can't lie. Yes, it's true."

"Ma," called Butzer, "come in and drag out that coffee cake for us. Let's not be mad at Pat anymore. He's in worse shape than we are—him with a partner like that."

Smiling, Mrs. Butzer, taking a hint from her husband, came quickly into the kitchen, tossed Pat a quick greeting and took some coffee cake out of the pantry.

"This matter ain't finished yet," Butzer said. "I'm goin' in to your place one of these days," he said, "and I gonna stick this under Oscar's nose and ask him if he wrote it. If he admits it, I am going to give him a rough time. I'll tell him a thing or two. I'll even accuse him of snitching paper from funeral parlors."

"Huh," said his wife, "you'd better be careful, Phil. He'll insult you right back, and maybe you'll get madder'n you figured to get. I've heard lots of stories about what Oscar says to customers he doesn't like."

"I'll risk that," Butzer said. "For once—I'm really gonna let him have it"

"Do we still get the anhydrous order regardless of the outcome?" Pat asked.

"I think so," grinned Butzer. "But if Oscar gives me too rough a time, I could change my mind."

OVER THE COUNTER

(Continued from page 9)

should contain "an urge to action," says the McMillen Feed Mills' publication "Advertising and the Master Mix Dealer."

Here are nine ways to create action through advertising:

1. Make an offer. Offer a booklet, free trial, premium, introductory price, time payments or other inducement.

2. Set a time limit. "Offer only good until . . .", "void after . . ." and "special for the holidays only" are good phrases to use.

3. Offer a limited supply. If the dealer's supply is actually limited, stress this fact. "Act now, supply limited," "not more than two to a customer" and "while the present supply lasts" are good phrases.

4. Make a guarantee. Stress that complete satisfaction is guaranteed or the customer's money will be refunded.

5. State that the price is rising. Give a specific date if possible. "Order before the price increases," "never again at this price" and "price goes up Sept. 1" are examples.

6. Offer a reduced price. Point out the desirability of taking advantage of an offer at once.

7. Emphasize gain or loss to the customer. Show what the customer can gain by acting immediately or what he loses by not.

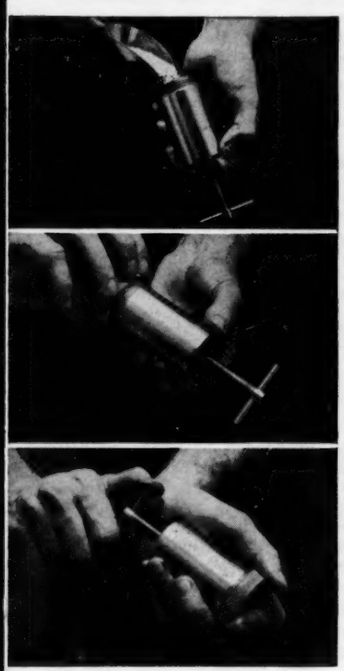
8. Offer a reward for promptness. "Order today and save" is an example.

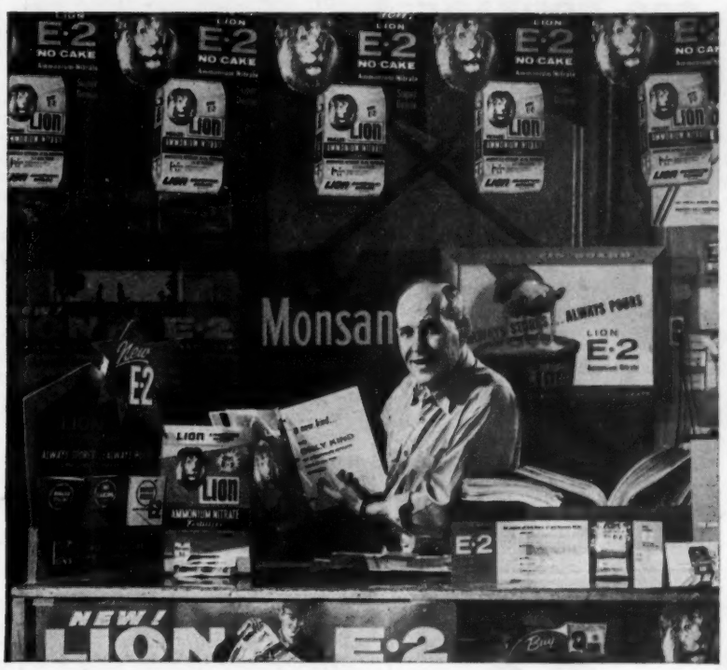
9. Use action words. "Don't delay," "don't put it off," "act now," "call today" and "come in today" are good phrases.

PUBLISH LEAFLETS

BERKELEY, CAL. — The division of agricultural sciences of the University of California has issued a series of booklets covering the 1959 pest control programs. These are available for distribution by contacting Agricultural Publications, 22 Giannini Hall, at the University, at Berkeley. Included in the group are the following: Leaflet 69, for almonds; leaflet 73, for olives; leaflet 75 for bush berries; leaflet 78 for peaches and nectarines; leaflet 79 for grapes; leaflet 81 for strawberries; leaflet 83 for cotton, and leaflet 85 for alfalfa hay.

CAKING PROBLEMS FOR GOOD!





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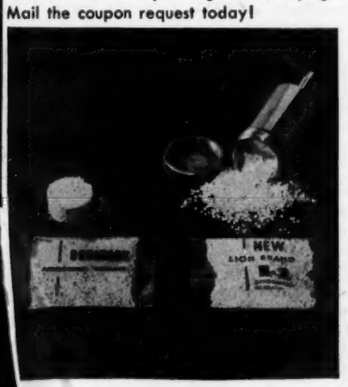
1. Steel compression chamber is filled with prilled ammonium nitrate.

2. Steel cap closes chamber.

3. Pressure up to 600 lbs. per sq. inch is applied by turning T-bar.

4. See Lion E-2 tested in your own store . . . compare results with any other ammonium nitrate you might be carrying. Mail the coupon request today!



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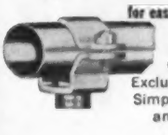

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FARM SERVICE DATA

EXTENSION SERVICE REPORTS

Water is an important "third dimension" when considering fertilizer and yield response, according to Dr. George R. Blake, University of Minnesota soils specialist.

"Water response must be understood by farmers, just as good farmers today understand and use fertilizer," he reported in a statement summarized in Chicago by the Midwest division of the National Plant Food Institute. "Water is related not only to crop growth and yield, but to fertilizer uptake and use by crops."

Dr. Blake said that through modern research, it is now possible to predict the probable number of rainless days in a given area, and thus estimate the crop response to fertilizer.

"Recent research advances," he said, "have enabled us quite accurately to estimate from weather records the actual amount of moisture leaving the earth by evaporation and transpiration. By combining this information with actual rainfall records and with water runoff estimates, we can specify the level of moisture at a given time."

He credited this break-through in knowledge to research over the years by a large number of scientists. He termed current researches "just as important to agriculture as moon rocketry is to national security."

★

That is the statement of Dr. Ralph A. Young, soil scientist at North Dakota Agricultural College.

Dr. Young reports that well fertilized wheat yielded 7.7 more bushels an acre with only six-tenths of an inch more moisture than did wheat grown on less fertile soil. These results were obtained in 29 field trials during a six-year test period.

In these trials, the well-fertilized fields received both nitrogen and phosphate. Other plots received phosphate alone, while still others received no fertilizer at all. The soils in the test areas were well supplied with potash.

Test at harvest time showed that the 5 or 6 ft. of the well-fertilized soil contained only six-tenths of an inch less moisture than did the lower fertility plots, says Dr. Young.

★

Midwestern agronomists report that the secret of getting lush green fields of alfalfa and alfalfa-grass crops lies in careful planning and seeding practices.

The first step toward good forage stands is to select a good mixture of legumes and grasses, says William F. Hueg, University of Minnesota agronomist. Results in Minnesota indicate that combinations such as alfalfa-brome will outyield alfalfa alone, or grass alone.

Mr. Hueg advises seeding in the spring. Legumes should be seeded shallow, on a firm seedbed, he says.

"Apply fertilizer, according to soil tests," he says. "Legumes will get a better start if they are fed plenty of phosphate and potash. These nutrients can be supplied by fertilizer, where needed. Many fields may need lime."

Dr. J. M. Scholl, Iowa State College agronomist, reports that the acreages of alfalfa and alfalfa-grass have doubled in the past 10 years.

"Farmers are becoming aware of improved cultural practices, such as liming, fertilizing and good management," he says. "And they are finding that alfalfa shows superiority over other forage crops both in quantity and quality of forage."

★

Planting corn in a single operation not only saved labor and money, but produced nearly 11 bu. an acre more than the usual method, according to a research report made by Clarence Hansen, a Michigan State University agricultural engineer.

Equipment designed to plow, plant, fertilize and apply pre-emergence spray for weeds in a single operation was tested on 11 Michigan farms. Yields were 10.9 bu. an acre larger than on companion plots tilled the conventional way.

Michigan State agricultural engineers compared the method with minimum tillage in 1959. Yields for both operations were about the same.

The once-over operation saves 36% on fuel and 37% on horsepower hours, as compared to the minimum tillage methods. Savings over conventional systems were more than 50% in fuel and horsepower.

The equipment designed for the experiment was mounted on a four-wheel tractor. The method of plow-planting used in this research would save about $3 to $6 an acre, Mr. Hansen's report indicated.

★

Giant foxtail can and does take giant-sized bites out of corn and soybean yields, according to current University of Illinois tests.

E. L. Knake, working with the university agronomy department, reported that results from two years of a three-year research study show that yields decrease as foxtail stands increase.

Citing figures taken from the study, Mr. Knake said that corn plots with no foxtail yielded up to 26 bu. more an acre than plots with foxtail stands. In soybean plots without foxtail, yields increased up to an additional 17 bu. an acre.

These results give some indication of how much weeds actually reduce yields. But they do not reveal how weeds compete with crops. Generally, it is assumed that weeds reduce crop yields by competing for moisture, light and nutrients.

To find out more about the competition for nutrients, Mr. Knake reported that an experiment supplementary to the one above was started in 1958. Here are the results:

In plots, with weeds, that received nitrogen only once, yields averaged 80 bu. an acre.

In plots, without weeds, that received nitrogen only once, yields averaged 98 bu. an acre.

In plots, with weeds, that received several nitrogen applications, yields averaged 102 bu. an acre.

And in plots, with no weeds, that received several nitrogen applications, yields averaged 117 bu. an acre.

According to Mr. Knake, these results further verify the fact that weeds decrease yields, and that adding nitrogen may increase yields. Also, adding nitrogen may help to increase yields even when weeds are present. But yields were highest when both practices, elimination of weeds and addition of nitrogen, were used.

★

Ohio fruit growers may find timely information on combating insects and diseases in a series of spray charts now available at county extension offices.

Ohio State University Extension specialists and Ohio Agricultural Experiment Station researchers prepared the charts from up-to-date research in insect and disease control.

Spray recommendations for apples are contained in two charts, one carrying a regular spray schedule listing recommended insecticides and fungicides, the other giving recommendations for control of special insects, diseases and pests.

There also are charts for pears, grapes, sour cherries, peaches and plums, strawberries and raspberries.

★

Liming acid soils is a good deal like hiring a factory foreman who gets top efficiency from the workers, reports Dr. D. J. Hoff, Ohio State University agronomist.

"In the case of lime, the addition of needed limestone to acid soils helps all the other nutrients do a better job of producing crops," says Dr. Hoff, in a statement summarized in Chicago by the midwest division of the National Plant Food Institute.

"The use of lime encourages the use of fertilizer. Farmers get a better response and larger yields from the crops they grow. These larger yields pull more nutrients from the soil. This means that more rather than less fertilizer will be required in the soil management program."

Dr. Hoff lists these reasons why liming pays:

1. Liming, where needed, creates a favorable environment for the growth of soil microbes. These microbes help convert organic nitrogen to the nitrate form which crops can readily use.

2. Lime helps keep fertilizer phosphate available to crops for a longer period.

3. Lime improves soil structure by promoting a granular, crumb-like soil structure that soaks up and stores more water, allows air to get in and out more easily and provides "leg-room" for crop roots.

4. Liming acid soils furnishes at low cost two essential nutrients—calcium and magnesium. It also helps prevent the accumulation in soluble form of toxic amounts of aluminum, iron and manganese.

5. Lime helps assure the growth and vigor of alfalfa and other desirable legumes.

Illinois farmers could produce upwards of 45 million more bushels of

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Mail coupon for L-32S literature and a copy of "Your Land Is Different" a booklet designed to help you sell more bulk fertilizer.

3 or 2?

Diamond's six-pound killers give you the answer!

LINE RIDER herbicides are now available in SIX-POUND and equivalent low-volatile emulsifiable and oil soluble concentrates. Two gallons of these six-pound formulations contain as much acid equivalent as three gallons of four-pound concentrates.

You save on freight. You save on truck space. You save on storage. You save on handling and field application. All of these add up to savings in money.

Write for details. Diamond Alkali Company, 300 Union Commerce Building, Cleveland 14, Ohio.

Diamond Chemicals

corn every year if all corn diseases could be controlled, A. L. Hooker, University of Illinois plant pathologist, declared.

Speaking to a visiting Farm and Home Festival audience, Mr. Hooker added that corn diseases attack all parts of the corn plant. The diseases lower yields and raise production costs per bushel.

★

Ohio farmers raising tomatoes for processing have been applying larger amounts of fertilizer each year according to a summary of the records of the Ohio Top Ten Tomato Club.

This is to be expected, since growers realize the importance of higher yields and the need for best quality that can be produced, according to E. C. Wittmeyer, Ohio State University extension horticulturist.

The club's records show the average basic fertilizer application for the 149 growers in 1958 was 283 lb. of actual nutrients per acre. The average application included 41 lb. of nitrogen, 126 lb. of phosphoric acid, and 116 lb. of potash. This is equivalent to about 700 lb. of 6-18-18 fertilizer, if such were available, Mr. Wittmeyer notes. Some of the growers applied additional fertilizer after planting. The 283 lb. represents a 70% increase in the amount of plant food applied since the club started in 1947.

Last year 60% of the growers in the club had their soil tested. This is another management tool, Mr. Wittmeyer says, that will help the grower and his field man make some of the soil management decisions affecting the crop.

Often tomato growers, as well as other vegetable growers, will apply large quantities of fertilizer and then be disappointed with results at end of season, according to the horticulturist. Sometimes the field selected for tomatoes may be unsuitable for this crop due to inadequate surface and internal drainage, poor soil structure due to lack of sufficient organic matter or improper tillage practices, high soil acidity, or even lack of water during latter part of season when crop is developing rapidly. Fertilizer, even though it is important, cannot solve some of these other soil problems, Mr. Wittmeyer points out.

When tomatoes are to be raised in the heavier soils that are in good tilth, half to two-thirds of the fertilizer can be applied before plowing, and remainder deep-drilled later. Another method is to deep-drill all of the fertilizer after plowing. Recent research work outside Ohio shows advantages to banding most of the fertilizer in bands 4 to 5 in. below the roots at planting time.

Growers with sandy soils should plan to apply most of the fertilizer after plowing, following with several side-placed applications after plants become established, Mr. Wittmeyer says.

The amount of fertilizer to apply will depend upon many different situations, such as the soil type involved, amount of manure that has been applied, the fertilizer program during the rotation, soil acidity, variety to be planted and results of the soil test. The amount will range from a maintenance application of 500 to 600 lb. an acre of 6-12-12 on soils that have been heavily fertilized during the entire rotation, to as much as 1,500 lb. or more of 4-16-16 where fertility levels are low. Field men for companies contracting purchase of tomatoes usually are well qualified to assist growers in working out specific fertilizer recommendations, Mr. Wittmeyer points out.

The use of starter fertilizers in transplanter water has become standard practice in the tomato processing area. Fertilizers for this purpose, according to the horticulturist, should be high in phosphoric acid and relatively low in nitrogen and potash. Several completely soluble formulations are available.

Gloomicides

A girl was talking about her two boy friends. "If I could combine them," she said, "I'd be the happiest girl in the world. Frank is gay, suave, rich, handsome and witty; and Don wants to marry me."

★

A tourist stopped to talk with a backwoods farmer. "I see you raise hogs almost exclusively around here," he said. "Do they pay better than corn and potatoes?"

"Well, no," drawled the farmer. "but hogs don't need no hoein' "

★

Brown was telling his guests about how he had brought up one of his sons to be a doctor and the other a lawyer. "You must be very proud," murmured one of the guests politely.

"Right now, it looks as if it might break up the family," replied Brown, shaking his head sadly. "I got hit by a car a while ago. My son the doctor wants to cure me, but my son the lawyer wants me to act crippled so he can sue for damages."

★

The teacher had asked her small pupils to tell about their acts of kindness to dumb animals. After several heart-stirring stories, the teacher asked Tommy if he had anything to add. "Well," he replied, rather proudly, "I kicked a boy once for kicking his dog."

★

A good wife laughs at her husband's jokes, not because they are clever but because she is.

★

Caller: "Doctor, my husband has some terrible mental affliction. Sometimes I talk to him for an hour and then discover he hasn't heard a single word."

Doctor: "Madam, that's not a mental affliction—that's a gift."

★

Take your choice: Be an old maid and look for a husband every day or marry and look for him every night.

★

A demure young bride, a trifle pale, her lips set in a tremulous smile, slowly stepped down the long church aisle on the arm of her dignified but aging father.

As she reached the low platform before the altar, her tiny slippered foot brushed a potted fern, upsetting it. She looked down at the spilled dirt seriously, and her childlike eyes rose to the sedate face of the minister.

"That," she said, "is a —— of a place to put a plant!"

SMIROW is the favorite natural organic of fertilizer manufacturers and farmers—and has been since 1921.

ONE HUNDRED PER CENT natural organic, uniform in texture and color, excellent mechanical condition, dust free - that is SMIROW tankage. There is no substitute for SMIROW's combination of benefits for fertilizer manufacturers and farmers.

Used in mixed fertilizers or applied direct, SMIROW provides sustained, even-feeding for that all-season effect on plant growth. SMIROW is not a synthetic — but 100 percent natural organic.

Put more customer benefits in your fertilizer —add to its selling power—with SMIROW tankage, the 100 percent natural organic nitrogen.

Let us figure the cost of SMIROW delivered to your plant.

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Side-dressing corn is easy with Spencer "Mr. N" Ammonium Nitrate, whether farmers use a side-dressing attachment, broadcast spreader, or even *a seeder* as shown above . . . and this is the year to sell hard on side-dressing! "See complete story below."

Throughout the Midwest, the report is...

"Farmers Planning Bigger Corn Crop for '59:"

More corn this year than last year means bigger sales of fertilizer to feed this nitrogen-hungry crop! Are you cashing in on this fast-growing sales opportunity?

Because farmers have planted more corn this year than they did last year, you can plan on greater sales of nitrogen. And because of the increase in planting, there will be a much higher percentage of corn after corn. This adds a *new* need for nitrogen! Since many farmers were not able to plow down or disc in nitrogen, they're going to have to side-dress. And now is the time to sell nitrogen for side-dressing!

More Midwestern Farmers Prefer "Mr. N"

Spencer "Mr. N" Ammonium Nitrate is the Midwestern farmer's favorite source of nitrogen for side-dressing, and it's easy to see why. Made in round, uniform prills that flow freely, Spencer "Mr. N" can be applied with a side-dressing attachment or a broadcast spreader, and some corn growers even use a seeder and get good results!

You dealers, remind corn growers that their corn will be taking four pounds of nitrogen from every acre of cornland *every day* by the time it's waist-high. Tell 'em to make sure their corn has all of the nitrogen it needs by side-dressing with Spencer "Mr. N" Ammonium Nitrate while they still can!

Even sudden spring rains won't hurt Spencer "Mr. N" Ammonium Nitrate in the new, weather-proof, all-plastic bags. They can be stacked temporarily in the fields where farmers plan to apply "Mr. N" to cut handling 50%! "Mr. N" is also available in polyethylene-lined paper bags. Spencer Chemical Co., Dwight Bldg., Kansas City 5, Mo.

FORM TEAM

(Continued from page 9)

building that houses the feed operation is at 126 N. Third St. and is 25 by 116 ft. A salesroom is 25 by 50 ft. Every inch of space is utilized, either for display or stock, and all items are spotless and shown to the best advantage.

Mr. Burtschi established the business at its present site in 1951. He related, "I got a good foothold at the very start for I set up my store right after working at another firm in Chickasha for 15 years. I served each customer there as I would if I owned the store myself. I tried to show the same interest. This attitude, I believe, led to many customers coming in to trade with me when I went into business for myself. More of that psychology!"

Mr. Burtschi finds insecticides and fertilizer highly profitable and popular with his customers. Farm supplies, a full line of garden and field seeds, and whole grains further increase the volume chalked up by this merchant.

Terms of 30 days net are offered and make up approximately 10% of the annual sales. Mr. Burtschi delivers supplies himself.

"This makes quite an impression," he observes, "and is much appreciated. And of course I don't have the worry of someone not making a delivery in the proper manner or attitude. One unsatisfied customer can hurt a great deal. The chance this chore gives me to really get to know my customer more than makes up for any inconvenience."

Parking is available directly in front of the store and at the back. No time is lost in wheeling out a customer's order on a hand truck and getting him on his way.

Mr. Burtschi is enthusiastic about the value of giving premium stamps. "The best way I know of putting it is that premium stamps increase my sales at least 30%," he said. "Women come into the store just to get the stamps. Very often a husband comes in and says, 'My wife said to get our supplies from you so she can have her stamps.' And we get a large number of phone calls all the time from women asking if we give premium stamps. When we notify them we do they let us know they are coming down. And they do."

This successful merchant cooperates with Bob Lamar, Grady County agent, and considers it time well spent to work closely with this expert. He plans to sponsor some 4-H members and support their programs.

Hours of operation are 7:30 a.m. to 6 p.m. A linoleum-topped counter is an efficient and inviting area to handle sales for the firm. Fluorescent light fixtures provide ample lighting.

Mr. and Mrs. Burtschi have also found it helps business to give free candy to the children and to give flower seeds in the spring to garden lovers. It helps promote an interest in such activity and adds to related product sales.

Mr. Burtschi summed it up with the comment, "For a year in and year out policy I don't think you can beat a close alliance with your supplier. He has the laboratories, the contacts, the experts, and the resources to really put over his line of feed. I use my supplier's services all the time and my profits keep climbing."

Higher Yields Cut Costs, Agronomist Says

The greatest opportunity for cutting costs per bushel of growing corn lies in shooting for higher yields, reports Dr. Paul R. Robbins, Purdue University agricultural economist.

Dr. Robbins points out that a good fertilizer program is essential for getting the higher yields that will cut costs and increase net income.

"A good fertilizer program," he says, "involves not only applying the right amount for the greatest net return, but applying the plant food where and when it is needed and using the proper analysis for the particular soil and farming situation."

Net income from corn growing can average $5 or more an hour, when farmers follow good management practices, according to Dr. Robbins. He bases this statement on a survey of 313 farmers in west-central and northern Indiana. The survey included "better-than-average" crop producers on farms with soils ranging from sand to clay loams.

The average yield of these farmers was 76 bu. an acre on first year corn on all types of soils. Differences in yields ran as much as 50 bu. an acre on some kinds of soil.

The total cost of producing the 76-bu. crop averaged $49.26 an acre. Net income was $40.67 an acre.

Dr. Robbins says average corn yields of 90 bu. or more an acre are within the reach of many farmers on most of these soils, "provided a good fertility program and proper cultural practices are followed."

Texas Experiment Station Gains Independent Status

HALFWAY, TEXAS—The progress of the High Plains Station near here now warrants reorganization of the station on an independent basis, according to Karl Hohitzelle of Dallas, president of Texas Research Foundation.

A charter from the state of Texas on April 18, 1959, was granted to the station, which will now become known as the High Plains Research Foundation.

The original station was established on 310 acres of land in 1956 at the request of farmers, ranchers and industrial leaders of the area.

Some of the more pressing needs are to find more efficient usage of water, finding the fertilizer response of various soils and to find new crops for the High Plains.

CROPS FIELD DAY

FARGO, N.D.—July 13 is the date set for the 1959 Annual Crops Field Day event sponsored by the Northwest Farm Managers and North Dakota Crop Improvement Assn. in cooperation with North Dakota Agricultural College research and extension agronomists. According to H. W. Herbison, NDAC extension economist and secretray of the Farm Managers Assn., the field day will get under way at NDAC at 8:30 a.m. with a registration and coffee period followed by a morning tour of the agronomy plots. Among other features of the field day is a noon luncheon at NDAC for farm operators and agricultural service people. All program events are open to anyone interested.

ASSISTANT ENTOMOLOGIST

UNIVERSITY PARK, N.M.—Louis O. Sanchez was appointed assistant entomologist with the department of botany and entomology at New Mexico State University. He will be chiefly concerned with the control of insects on fruit trees and beef cattle at the NMSU experiment station.

PINE INSECT CONTROLS

CLEMSON, S.C. — Information Card 98, "Insects Attacking Pines—South Carolina," prepared and printed by the Clemson Extension Service and the South Carolina Commission of Forestry, is now being distributed. Copies may be obtained from county agents and from local foresters of the Forestry Commission. The card presents in brief from information on the more common insects which attack pines in this state.

The Week in WASHINGTON

By JOHN CIPPERLY
Croplife Washington Correspondent

WASHINGTON — The House Appropriations sub-committee for agriculture slapped down the administration proposal to cut back the ACP payments for the coming year and added another $150 million to the budget request which puts this appropriation account back to its earlier status.

While the House sub-committee knocked off nearly three quarters of a million dollars from plant, animal and disease control for the coming year, it did, however, increase funds available for the control of soybean cyst nematode to the tune of $159,000.

In the case of soybean cyst nematode the committee reported that USDA's pest control service had submitted evidence which caused the committee to view the potential spread of this pest with alarm and prompted an additional $159,000 for eradication of this pest.

However, evidently bending under localized pressures, this strong appropriations sub-committee backed away from aerial spraying money which has come under heated criticism from the New York daily press in the campaign against the gypsy moth.

In a sub-rosa retreat from its usual support of the pest control authority of USDA, this committee reports in the following terms: "Further study should be given to aerial application of insecticides to make certain that only granular poison is used."

Nailing down the criticism of this important committee are the subsequent words of this report which states—"The committee feels that this program (gypsy moth) should be undertaken only in those areas where the local governments and the landowners have given their consent."

This last consideration sounds like a tough fiat but it must be remembered that USDA in its gypsy moth control activities in recent years has only moved with state cooperation. And now it may be expected that further federal government cooperation—and it must be emphasized that it is federal government cooperation and not federal government initiative—is precisely what has happened in the last years of gyspy moth control.

The committee admonition in this connection is vague but it is known to Croplife that there is a close liaison between USDA pest control authorities and state agencies and there is little reason to believe that the House committee is closing the door on such actions in the nearby future.

RANSOM

(Continued from page 1)

1945, when growers depended upon inorganic insecticides such as arsenicals and sulphur, yield increases amounted to about 34% annually.

Highest cotton production on treated plots and the greatest increase over untreated plots occurred in 1955 when treated plots produced 1,461 lb. of seed-cotton per acre as compared with only 778 lb. on untreated plots. The greatest percent increase over untreated plots was in 1946 when 403 lb. per acre were harvested from untreated plots and 1,034 lb. were harvested from treated plots for a 156 6% gain attributable to insect control.

Each year, the entomologists compared several plots to reduce the chance of error, although records were taken from 2,172 plots totaling 8,279 acres.

A similar study, conducted in Louisiana for 30 years prior to 1954, showed that the average increase in seed-cotton yield, due to insect control, amounted to 371 lb. per acre of 25.5% more than the average production of untreated acres.

Since 1939, when the Cotton Insects Laboratory was established at Waco, tests have been conducted to compare production on plots treated with new insecticides, with standard insecticides, and plots receiving no pest control treatment.

The comparisons were made in several Central Texas counties under varied conditions and may, therefore, serve as a basis for estimating crop losses where no insecticides are used.

Insects of primary importance in most years were the boll weevil and bollworm. The cotton fleahopper was important in many years. The cotton aphid was important until the mid-1940's. The cotton leafworm and desert spider mite did not usually develop to proportions that could influence crop production.

Insecticides were applied usually as low-volume, low-pressure emulsion sprays after 1948. From 1939 to 1948, they were applied mostly as dusts. Only a few irrigated plots were involved in the study, and those only during the last three years.

Areas treated with standard insecticides, and with experimental insecticides that approached or surpassed the standard in results, were included in the yield comparisons. The largest increases in yield due to insecticide treatment occurred in years when insect damage was greatest. Increases exceeded 50% in 6 years and 25% in 10 other years of the period.

Ris-Van Names New Public Relations Director

BELMOND, IOWA—L. T. Trafford, mayor of Belmond, has joined the local staff of Ris-Van, Inc., manufacturer of liquid fertilizer, as director of public relations and assistant sales manager. The announcement was made by Kenneth Van Duzer of Mason City, Iowa, president of Ris-Van.

Mr. Trafford had been advertising manager of Tomahawk Corn Co. for the past eight years. He is now in his second year as mayor. He will work with Ris-Van's dealer organization, which in the past year has grown from 150 dealerships to more than 200 in northern Iowa and southern Minnesota.

The company has opened new plants in the past two years at Blue Earth, Minn., and West Union, Iowa. Mr. Van Duzer says negotiations are under way for the site of a fourth plant, which will increase the capacity to 2,500 tons daily.

62% of hogs
sold in 1957 by
Successful Farming farmers

On January 1, 1959, US farmers had 57,201,000 head of hogs and pigs—six million more than a year ago. The huge increase in hog numbers increases the opportunity for sellers of fertilizer!

SUCCESSFUL FARMING farmers are the nation's largest hog sellers. Raising the feed grains for their vast livestock inventory takes a lot of nutrition from the land . . . and requires constant replenishment with commercial fertilizer.

The farms of SF subscribers are big—average 336 acres. The average annual income of SF farm subscribers is high. Their estimated annual cash farm income from farming alone has been around $10,000 for the past decade, reached $12,120 in '58.

Of SUCCESSFUL FARMING'S 1,300,000 subscribers, almost 9 out of 10 live on, own, or operate a farm. SF puts your fertilizer sales messages before the eyes of customers who buy fertilizer, has a minimum of waste. And SF gives *influence* based on 57 years of service, helping readers earn more money and live better.

Any of your own dealers can tell you about SF influence and selling ability in his own territory. The nearest SF office will gladly tell you more about the best market and medium for fertilizer sales!

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Only Dempster Liquijectors offer so complete a line of Liquid Fertilizer Equipment . . . tractor mounted, semi-mounted and carrier mounted . . . equipped with flow control valves or the simple, super-accurate Dempster Liquijector metering pump.

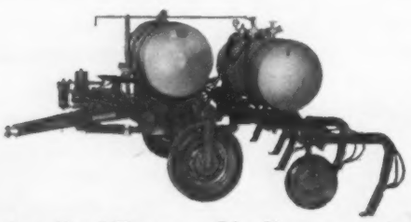
FOR SOLUTIONS . . .

Liquijecting fertilizer solutions directly into the ground is a great advance in economy and efficiency over the spray-boom method. Dempster Liquijectors Type S can be supplied with black iron, aluminum or fiber glass tanks; Liquijector solutions pumps with cast iron or non-corrosive nyresist castings. Shown above, Dempster Type S Liquijector on Model 500 Dempster 3-point hitch hydraulic lift Tool Carrier.

FOR ANHYDROUS (NH_3) . . .

Thousands of Dempster Liquijectors now in operation testify to the lasting efficiency of these anhydrous applicators. Available in every size from tractor-mounted 60 gallon machine to large Carrier-Mounted and semi-mounted models covering 14 ft. at a pass. Above: Semi-Mounted Liquijector with positive, accurate ground wheel drive of Liquijector Pump.

FOR BOTH . . .



Dempster Dual-Purpose Liquijectors, mounted on Model 500 Tool Carriers, feature two 150 gallon tanks —one with Liquijector pump for solutions, the other, with flow control valve for Anhydrous application at a single operation.

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Minnesota Farmers Up Fertilizer Use in '58, But Land Still Hungry, Expert Says

ST. PAUL, MINN. — Minnesota farmers in 1958 used 14% more fertilizer than they did a year earlier. Yet, much state land is still going fertilizer-hungry.

According to Dr. W. P. Martin, head of the soils department at the University of Minnesota, fertilizer use in 1958 totaled almost a half million tons. That was a whopping 25 times more than that applied in 1940. In terms of actual plant foods applied, the increase was even greater, since farmers are continually using more high-analysis fertilizer.

Despite the apparent boom in fertilizer sales, hardly more than half of all Minnesota farmers are using any fertilizer at all. And for the state as a whole, Dr. Martin says plant nutrients are still being used up at a faster rate than what is being returned in fertilizer form.

Using fertilizer, Dr. Martin says, is one of the best ways farmers have to beat the cost-price squeeze through more efficient production. Minnesota soils research shows a dollar invested in fertilizer can easily return $3 to $5 in increased profits.

Actually, fertilizer use hasn't increased as much as some other improved farming practices. While farm machinery sales increased 116% since 1939, fertilizer use has gone up only 48% in the same period.

The upward trend that has occurred in fertilizer use has been in part due to more soil testing. Dr. Martin says 30,000 samples were tested in the university soils laboratory last year. This was more than ever and twice as many as five years ago.

Rancher Follows Soil Test Recommendation; Turns Waste to Plenty

COLLEGE STATION, TEXAS — The transformation of a needlegrass and broom sage field into a highly productive pasture has made T. G. Hemby, Jr. of New London, Texas, a strong believer in soil test recommendations.

Two years ago Mr. Hemby purchased a tract of worn-out land near New London that was supporting a cover of only needlegrass and broom sage. The land would not carry a cow to 10 acres and produce a normal calf crop. Mr. Hemby set out to do something about the situation and his first move was to take soil samples and have them analyzed.

Back from the soil testing laboratory came a recommendation that both lime and fertilizer be applied. Mr. Hemby followed the advice and now has 60 steer calves grazing on 25 acres of crimson clover, oats and vetch. And what is more, the calves are not keeping up with the forage produced.

Mr. Hemby reports that those who have seen the change are surprised at what has taken place. He is sure that the application of lime and fertilizer in the recommended amounts, based on the soil test, is responsible and further believes that the lime has stepped up the efficiency of the fertilizer.

W. F. Bennett, extension soil chemist, who also is in charge of the soil testing laboratory at Texas A&M College, cites this as another example of what can be done with worn-out cropland in sections of Texas where lime is needed to get the soil acidity up to where adapted forage plants can thrive. Last year, he said, an estimated 143,500 tons of lime were sold in Texas against an estimated annual need of almost 4 million tons.

Demonstrations, such as the one conducted by Mr. Hemby, have shown, said the chemist, that an application of lime can return more dollars per dollar invested than the use of fertilizers alone in soils which need lime. A soil test, he added, will give the answer as to the amount needed.

CONSTRUCTION TO START

JEFFERSON, ORE.—Construction will begin here immediately of a new $100,000 general warehouse and seed handling plant. Owners of the plant are Jake Gilmour, Jefferson; Lloyd Wright, Junction City; Lee Wright, Portland, and Bill Moy, Albany. The new warehouse, equipped with automatic blower equipment for handling seed, something still rare in the state, should be completed to allow handling of this year's crop, the owners said.

Duster Hits Auto During Takeoff; Passenger Hurt

BAKERSFIELD, CAL.—A crop dusting plane struck a car during takeoff from an agricultural landing strip, injuring a passenger in the auto.

The pilot, Edward May, 25, of Bakersfield, said he was caught in a squeeze between the car and power lines.

"I was only a few feet off the ground when I saw the car coming along the road," he said. "I couldn't go up because of high voltage lines, and couldn't go down because of the car.

"So I gambled that I would miss the car by a few inches. But I lost," he told the California Highway Patrol.

The undercarriage of the plane, loaded with chemical spray, scraped along the top of the car driven by Clyde Robinson, of Bakersfield, pushing it into an irrigation ditch.

The passenger, Clayton Wolford, 52, also of Bakersfield, suffered leg, back and neck injuries when the car was shoved off the road. Mr. May managed to bring the plane, with its wheel assembly torn loose, to a pancake landing on the road. Neither he nor Mr. Robinson were hurt.

George Klein

APPOINTMENT of George Klein as sales manager, triple superphosphate, has been announced by D. N. Hauseman, vice president, agricultural chemicals, W. R. Grace & Co., Davison Chemical Division. Mr. Klein has been with Davison 24 years in various posts, and recently on special sales assignments. In his new position he reports to William Caspari, Jr., general sales manager, agricultural chemicals. A native of Baltimore, Mr. Klein has had wide experience in mixed fertilizers as well as fertilizer materials. He was from 1944 to 1954 manager of the Davison mixed fertilizer plant at Nashville. From 1954 to 1956 he was general sales manager, mixed fertilizer division.

Far West Fertilizer Projects Supported By NPFI Grants

SAN FRANCISCO — A number of research projects which can bring to light valuable information on the profitable use of fertilizer are being supported by financial grants from the National Plant Food Institute in the Far West.

"Research results will be published and should help farmers to determine and employ the most profitable rates of fertilizer for their operations," according to Dr. Richard B. Bahme, western regional director for NPFI in San Francisco.

"A total of four such projects are currently being financed by NPFI in California," Dr. Bahme said. The NPFI also awards annually a scholarship to an outstanding agronomy student in both Arizona and Colorado.

"In each case, studies and scholarships have been made possible through close cooperation between university personnel and the institute," Dr. Bahme said. Projects being financed in California are the following:

A grant to support a study on the Davis campus designed to unearth new facts about the interaction of fertility and soil moisture. This three-year, one-man study is now going into its second year, through the cooperation of the departments of irrigation and soils and plant nutrition. Dr. Bahme anticipates that this research will show the impressive results of fertilization when coupled with proper irrigation.

Another fellowship on the Davis campus is making possible a study to determine how to best use demonstrational fertilizer plots to convey information about improved fertilization practices to farmers. Research is being conducted in the department of education by means of an NPFI grant.

"When there is valuable information available from demonstration plots, it is vital to know by what means, or through whom, this information can best be brought to the attention of the farmer," Dr. Bahme said.

A third fellowship, also at work on the Davis campus, is designed to reveal the specific economic benefits of fertilizing important California crops. A grant is backing this one-year study being undertaken by workers in the department of agricultural economics who are digging out research with the help of various crops departments. Reports which will bring the facts to both farmers and agricultural scientists are expected by the end of the year.

The fourth NPFI grant in California is financing a project for the preparation of crop fertilization teaching aids and materials for vo-ag teachers. This grant, being utilized at the California State Polytechnic College at San Luis Obispo, will produce a manual early in 1960. The manual, "Guides for Soils and Fertilizer Demonstrations in Crop Production," will be distributed by the California Department of Education to high schools throughout the state.

NEW BAG SUPPLIES

MIDDLETOWN, OHIO — The installation of new manufacturing equipment at the Halifax Paper Co. at Roanoke Rapids, N.C., will "mean further insurance of adequate kraft paper supplies for all our production requirements," according to J. R. Clements, president of the Raymond Bag Corp. here. Both Raymond and Halifax are divisions of the Albemarle Paper Manufacturing Co., Inc., of Richmond, Va. Halifax is a paper supplier for Raymond's production of multi-wall bags.

Arkansas Pasture Club Demonstrates Need for Adequate Fertilizer Use

DAMASCUS, ARK.—The Arkansas Valley Pasture Club, a group formed 10 years ago to promote year-around grazing, held its annual tour on the farm of Q. T. Linn near here recently.

R. R. (Russ) Wood, Russellville, club president, said "large amounts of poor quality hay and silage harvested last year" have cut into milk and beef production in the Arkansas River Valley area.

The need for adequate fertilizer usage was pointed up by Lebert B. Parish, vocational agriculture instructor at nearby South Side High School. He said:

"I am convinced that many farmers drop their fertilizer schedules too soon. Sometimes an extra application of nitrogen can be the most profitable investment in the entire program."

A graphic demonstration of fertilizer usage and results was given during the tour. The group visited one field that had been divided into three separate plots, each of which received different fertilizer schedules. The results:

Plot 1 was fertilized with 200 lb. of 10-20-10 when it was seeded Sept. 10. The fertilizer cost $7.60 an acre and the yield was 2,042 lb. of green forage, or 510 lb. of hay.

Plot 2 received the same amount of fertilizer—200 lb. of 10-20-10—when it was seeded. But it was top-dressed in October and again in February with 100 lb. of ammonium nitrate. The two applications cost $8, but the yields soared to 8,166 lb. of green forage of 2,041 lb. of hay. This was an increase of almost 400%.

Plot 3 was treated exactly as the others, except that an additional 100 lb. of ammonium nitrate was applied in April. The yield on this plot jumped to 16,332 lb. of green forage or 4,083 lb. of hay.

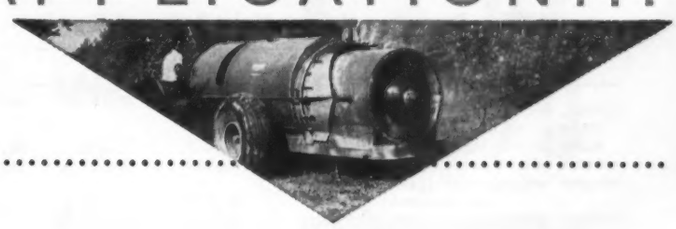
Nitrogen Can Double Wyoming Small-Grain Yields, Soil Scientist Says

LARAMIE, WYO.—Wyoming farmers can double irrigated small-grain yields by applying 40 to 80 lb. of nitrogen an acre, according to L. I. Painter, Wyoming University soil scientist.

University researchers tested nitrogen, phosphate and potash fertilizers on irrigated small grains in university agricultural experiment station trials at Torrington, Powell, Riverton and Farson in 1957 and 1958.

Applications from 40 to 80 lb. of nitrogen an acre increased grain yields up to 100% on low-fertility soils. Nitrogen applications of more than 80 lb. often caused grain to fall over before harvest, Mr. Painter says.

FOLIAR APPLICATION...



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MEMPHIS, TENN.

SUPPLIES

(Continued from page 1)

cally manufacturing these particular items was down an average of 7% from Sept. 30, 1957. For instance, fumigants still held by primary producers were 45% less and calcium arsenate stocks were 32% more than the previous year. The proportion of all stocks reported to be in the form of mixtures or dilutions has increased again from 27.9% in 1956 and 38.6% in 1957 to 48.2% in 1958.

The U.S. Bureau of the Census, in addition to its periodic Census of Manufactures, makes an annual survey of manufacturers based on reports from about 50,000 selected establishments. The results of the survey for 1957 recently released show about the same level of shipments of agricultural insecticides and fungicides for the years 1955 through 1957 while shipments of household pesticides climbed steadily.

The value of sprays and dusts handled by farmer cooperatives continued to rose through the 1957 fiscal year when it reached a gross of $57,190,000. The previous year the gross was $50,090,000.

Cool wet weather prevailed generally throughout the country in the spring of 1958. Plantings were postponed and many insect populations retarded, the movement of pesticides being delayed as a result. Lasting into the summer in many areas, the damp season promoted fungus diseases such as late blight of potatoes and increased the consumption of fungicides. The weather favored aphid populations also, as well as the growth of weeds.

In the South the winter of 1957-58 was the coldest in 30 years. Many hibernating insects were killed by the low temperatures. The 1958 growing season was shortened by the late spring. Demand for cotton insecticides was reported reduced as much as 40% in some areas. The consumption of cotton dusts in Alabama was 29% less in 1958 than the year before, and spray concentrates were down 67%.

Arkansas reported an average of 5.9 applications of insecticides to cotton during the 1958 season requiring 40,255,716 lb. of dust equivalent, compared to an average of 7 applications with a total of 89,939,163 lb. of dust equivalent in 1957. The volume of insecticides sold in Louisiana differed little in 1958 over 1957 although considerable shifts occurred in the kinds of materials sold. Only scattered data are available showing the quantities of cotton insecticides applied elsewhere in the U.S.

The worst infestation of grasshoppers since 1949 developed in 1958. In 13 western states 4,338,329 acres of range, roadside, idle land and waste land were treated in the federal-state cooperative control program, compared to 1,738,651 acres in 1957. The acreage treated in Colorado was 49.7% of the total for the 1958 program. Over 4 million gallons of mixed insecticides were applied in the five-state area of Colorado, Kansas, New Mexico, Oklahoma and Texas.

For control of the Mormon cricket in 1958, rolled wheat impregnated with aldrin was used to bait 73,203 acres in five states.

The area sprayed by federal and other agencies for gypsy moth control in 1958 covered 534,576 acres, a sharp decline from 1957.

In the cooperative program to eradicate the imported fire ant 437,014 acres were treated by June 30, 1958, of which 74% were in Georgia, Alabama and Louisiana. Granular formulations of either heptachlor or dieldrin were used.

A marked decrease has occurred in the abundance of European corn borers in the central states, according to a survey conducted during the late summer and fall of 1958. An increase was recorded in some eastern states.

Federal-state surveys made last fall indicated that grasshoppers are likely to be more widespread but less of a threat to western crop and range lands in 1959 than a year ago. The effect of the cooperative control campaign last summer was apparent in survey results.

The acreage of crops, forests, etc., treated with pesticides from the air in 1957, according to the CAA Annual Survey of Aerial Work Aviation Activities, was 18.4% over 1956 and 24.9% over 1955. Acreages treated in 1957 were distributed as follows: 4.9% in Region 1 (Northeast, to and including Ohio, Kentucky and Virginia), 37.0% in Region 2 (Southeast and South, including Oklahoma and Texas), 12.4% in Region 3 (North Central states, except Ohio and Kentucky), and 45.7% in Region 4 (Mountain and Pacific states). The proportion treated in Region 4 rose over 1956 while it dropped slightly in all other regions. The aerial application of dry materials was 4.8% higher in 1957 than in 1956 and the volume of liquids rose 11.4%.

Production of DDT rose steadily during the 1957-58 crop year to reach 131,862,000 lb. From Oct. 1 through Dec. 31, 1958, production was 38,173,000 lb. The total for the 1958 calendar year was a record 143,216,000 lb.

Producers' and mixers' stocks of DDT Sept. 30, 1958, were down to 85% and stocks of DDT producers themselves were down to 75% of their 1957 inventories.

Exports of DDT were 69,523,000 lb. during the 1957-58 crop year, 13.8% higher than the previous year. Exports for the fourth quarter of 1958 amounted to 14,348,000 lb. Of the 70,111,000 lb. of DDT exported during the 1958 calendar year, 40,118,000 lb. or 57.2% were shipped as 75% material. Exports of DDT during January and February, 1959, totaled 19,132,000 lb., of which 14,984,000 lb. were in the form of 75% material.

The General Services Administration, since early 1958, has purchased large quantities of DDT for the worldwide antimalaria program of the International Cooperation Administration, as evidenced especially by the figures for exports of 75% DDT. No imports of DDT into the U.S. have been reported since small amounts arrived in 1950 and 1951. Domestic disappearance of DDT at the producers' level in 1957-58 was 66,700,000 lb., somewhat under either of the previous two years.

Production of benzene hexachloride (gamma basis) during the 1957-58 crop year amounted to about 6 million lb. considerably less than the previous year. Some imports of lindane have been made in recent years (20,504 lb. in 1956; 11,955 lb. in 1957; no figure is yet available for 1958). Exports of BHC (gamma basis) in 1958 (calendar year) were 1,538,000 lb., 20% lower than in 1957. Stocks of BHC producers were down 10% on Sept. 30, 1958, from the year before, while total manufacturers' and mixers' inventories were up 22%. The proportion of 36 to 47% gamma grades of BHC in inventory increased over previous years.

Combined production of aldrin, chlordane, dieldrin, endrin, heptachlor and toxaphene during 1957-58 was 88,879,000 lb., up 20% from 1956-57. Heavy production of some of these items in the last quarter of 1958 raised production for the calendar year to 98,280,000 lb. Stocks as a whole were slightly down from Sept. 30, 1957. Sales of these insecticides in Canada have grown rapidly to over $1 million in 1957-58.

Of fertilizer-pesticide mixtures consumed in the continental U.S. and Puerto Rico in the year ended June 30, 1956, 58% contained aldrin, 31% chlordane, 5% heptachlor, and the remaining 6% miscellaneous pesticides.

Organic phosphorus insecticides continue to increase in volume of sales and in diversity of kind and use. Large amounts were manufactured during 1958 but actual figures are not yet available.

Sales of methyl parathion, one source reports, rose to 4,500,000 lb. by 1958, chiefly for application to cotton.

Total stocks of organic phosphorus insecticides reported by the producers of these for Sept. 30, 1958, were more than double stocks of the same date a year earlier. Inventories of these in the possession of all pesticide manufacturers and mixers were up only about 60%. Drastic cuts in the prices of parathion and methyl parathion were made in 1958 due at least in part to foreign competition.

In 1956 imports of organic phosphorus compounds amounted to 336,069 lb. or 82% of all organic pesticide imports; in 1957 they were 2,545,565 lb. or 91%. Exports of this group of insecticides have been published separately only since Jan. 1, 1958. They amounted to 5,383,000 lb. having a value of $4,244,000, or 5.2% of the total value of pesticide exports for the calendar year 1958. In the first two months of 1959 their value was $1,374,000.

Calcium arsenate production in 1958 was about 9 million pounds in contrast to nearly 20 million pounds the year before. Manufacturers' inventories at the end of the 1958 season were 25% above those in 1957.

Sales of calcium arsenate and its mixtures reported in Louisiana were 3,900,567 lb., only 62% of 1957 and 36% of 1956 sales. Sales there in the three-year period 1956 to 1958 were 35 to 45% of domestic disappearance for the entire U.S. Calcium arsenate is being advertised for a new use in 1959, the control of crabgrass. A figure for lead arsenate production in 1958 is not yet available. Small quan-

TABLE 1. Production of Some Major Pesticidal Chemicals

Chemical	1956	1957	1958 1/
	1,000 lb.	1,000 lb.	1,000 lb.
Aldrin, chlordane, dieldrin, endrin, heptachlor, and toxaphene (combined production)	86,659	75,424	98,280
Benzene hexachloride (gross) 2/	84,599	39,559 4/	31,000
Benzene hexachloride (gamma equivalent) 2/	14,700	7,300 4/	6,200
Calcium arsenate	27,106	19,478 4/	9,000
Copper naphthenate	2,012	2,130	5/
Copper sulfate	133,616	141,360	97,192
2,4-D acid	28,835	34,251 4/	28,500
2,4-D acid esters	19,476	24,137)	
2,4-D acid salts 3/	1,766	3,182)	22,827
DDT	137,659	124,545 4/	143,216
Disodium methylarsonate	6/	618	5/
Lead arsenate	11,756	11,920 4/	5/
Methyl bromide	10,204	9,653	5/
Methyl parathion	6/	1,925	5/
Nabam	5,486	4,961	5/
Parathion ("ethyl parathion")	6,529	5,962	5/
Pentachlorophenol	31,385	28,346	5/
Phenyl mercuric acetate	693	570	5/
Sodium chlorate	110,136	118,284	134,498
2,4,5-T acid	5,169	5,334 4/	3,500
2,4,5-T acid esters	7,045	6,831	5/
Ziram	1,436	1,277	5/

1/ Preliminary.
2/ 1958 includes lindane; 1956 and 1957 without lindane.
3/ Sodium and amine salts.
4/ Revised figure.
5/ Figure not yet available.
6/ Figure not publishable because it would disclose individual operations.

TABLE 2. Disappearance of Some Major Pesticides

Pesticide	Domestic disappearance 1956-57	Domestic disappearance 1957-58	Minimum requirements for domestic consumption in 1958-59
	1,000 lb.	1,000 lb.	1,000 lb.
Aldrin, chlordane, dieldrin, endrin, heptachlor and toxaphene (combined) 2/	52,500	78,834	60,000
Benzene hexachloride 3/	6,600	5,500	6,000
Calcium arsenate	18,250	9,000	7,000
Copper sulfate 4/	78,600	75,058	30,000
2,4-D (acid equivalent)	20,500 7/	21,300	22,000
DDT	71,000	66,700	65,000
Lead arsenate	12,000	n.a.	10,000
Pyrethrum 5/	7,396	8,648	7,500
Rotenone 6/	6,224	4,140	5,000
2,4,5-T (acid equivalent)	1,800 7/	3,800	3,000

1/ Based on available information; crop year is from October 1 to the following September 30.
2/ Not corrected for exports below basic producers' level.
3/ Gamma isomer basis; includes lindane.
4/ Disappearance at primary producers' level for all domestic uses including industrial; requirements are for agriculture only but include plant nutrient as well as fungicide use.
5/ Revised imports; includes flower equivalent of imported pyrethrum extract.
6/ Imports; includes cube and derris, both whole root and powdered.
7/ Revised by deducting estimates of exports from previously published figures.

tities of paris green are still being produced.

Pyrethrum is increasing in use around foods where other effective insecticides cannot be applied because of their greater toxicity to man. Imports during the calendar year 1958 were valued at $3,814,111, an increase of 49% over 1957. Total imports on the basis of pyrethrin content appear to have been higher in 1958 than any year since 1949. Of 1958 imports (reported dollar value), 225,732 lb. or 57% were extracts compared to 88,030 lb. or 31% in 1957.

Imports of pyrethrum from Yugoslavia, the native habitat of the plant, have risen steadily in the last three years from 57,661 lb. of flowers in 1956 and 85,784 lb. in 1957 to 153,948 lb. in 1958. No imports were reported from there in 1954 and 1955.

Approximately 135,000 lb. of pyrethrum extract has been disposed of from the national stockpile. Announcement has been made for the disposal in 1959 of an additional 66,000 lb.

Imports of rotenone-bearing root, whole and ground, in the calendar year were valued at $729,189, a reduction of 16% from 1957 and 38% from 1956. Manufacturers' inventories Sept. 30, 1958, were slightly under those of the previous year.

Ryania sales in Louisiana in 1958 dropped to 1,816,300 lb. from 2,497,740 lb. in 1957.

Sabadilla seed is being imported for the 1959 season, according to trade sources.

Heavier rainfall during the 1958 growing season increased the prevalence of plant diseases and the consumption of fungicides. Organic fungicides were in much demand and stocks of some were reduced considerably below the 1957 carryover.

Sodium methyl dithiocarbamate is marketed in appreciable quantities for soil treatment against nematodes, weeds and fungus diseases. Sodium dimethyl dithiocarbamate, however, has limited direct use as a fungicide (i.e., in wax applied to melons before crating in California). It is produced as an intermediate, much of it captive, for the manufacture of the iron and zinc derivatives, ferbam and ziram, as well as a variety of related compounds used as rubber accelerators.

Shipments of copper sulfate in 1958 for domestic agricultural use were heavier than any year since 1952. Inventories of copper fungicides at the end of the season were 25 to 30% higher than at the same time in 1957. Exports of copper sulfate dropped sharply in calendar 1958 to 14,494,000 lb. from the five-year (1953-1957) average of 65,449,000 lb. Exports in 1959 through February were only 214,904 lb. Petroleum oil fractions have within a relatively short time been substituted for copper fungicides in practically all important Latin American banana-growing areas.

Mercury consumed in pesticide production in 1957 amounted to 6,337 flasks (481,612 lb.), or 12% of total U.S. consumption. The Tariff Commission reported 570,000 lb. of phenyl mercuric acetate and 540,000 lb. of other organic mercury pesticides were produced in 1957. Figures for 1958 are not yet available.

Zinc sulfate shipments to agriculture in 1957 were 9,818 tons (gross weight), greater than for any year since 1946 when they amounted to over 10,000 tons.

Pentachlorophenol production in 1957 was 28,346,000 lb., about 10% under the 1956 figure. Consumption reported at wood-preserving plants for 1957 was 42% of production for that year.

Herbicides are in increasing demand for weed control, or "chemical mowing," along highways, in park lands, around reservoirs, etc., where their use reduces maintenance costs and improves management. In wet seasons as in 1958, which stimulate weed growth, herbicides (both pre- and post-emergence) are in greater demand.

Most weed control activities in Minnesota have increased in recent years. Consumption of "soil sterilizing" compounds in that state has fallen, however, to less than 800,000 lb. in 1958 from the peak use of 1,660,000 lb. in 1954. In Montana, chemical control of weeds has increased in small grains. The treated acreage in 1958 was 56.5% of the area seeded to these crops; in 1953 it was 40%.

Production of 2,4-D and 2,4,5-T was somewhat lower in 1958 than the previous year. Inventories of 2,4-D on Sept. 30, 1958, were appreciably larger than the year before while those of 2,4,5-T were nearly the same. Exports of these two materials during the calendar year 1958 amounted to 6,788,000 lb. (acid basis) with a value of $2,929,000, comprising 3.6% of the total value of pesticide exports for the year. The value of all other herbicide exports in 1958 was $5,987,000. Herbicide exports during January and February, 1959, had a total value of $1,013,000, of which 2,4-D and 2,4,5-T accounted for $388,000 or 38%.

Of producers' 1957 sales of 2,4-D esters, those of the n-butyl ester comprised 36.3% and of the iso-octyl derivatives 8.4%. Sales of the iso-octyl ester of 2,4,5-T amounted to 27.0% of all 1957 sales of 2,4,5-T esters.

Appreciable quantities of MCPA ("Methoxone") herbicides have been imported lately, as follows:

1954	96,500 lb.
1955	119,869 lb.
1956	49,934 lb.
1957	166,793 lb.

Defoliants were applied from the air to 2,204 acres of crops in 1955, to 1,976 acres in 1956 and 2,094 acres in 1957. No figure is available yet for 1958. Heavy rains last season led to the defoliation of a larger crop area from both ground and air than in recent years.

Inventories of fumigants (grain and soil) at the end of last season were down to about one half the 1957 level. This indicates an increased demand in 1958. Exports of these pesticides for the 1958 calendar year amounted to 4,184,000 lb. valued at $1,112,000. For the first two months of 1959 they amounted to 300,683 lb. with a value of $135,649. Sales of soil fumigants in Canada have grown in recent years; however, they amounted to only $36,171 for the 1957-58 crop year.

Considerable carbon disulfide is used for feed control in California. 1,290,000 lb. being applied there for this purpose in 1957. A further 182,710 lb. were used in the state's rodent control operations that year.

Production of anticoagulant rodenticides in 1957 was 1,400,000 lb. (0.5% basis), according to a recent survey by the U.S. Department of Commerce.

The consumption of dust carriers and diluents in the manufacture of pesticidal preparations in 1957 was 22% lower than the year before, on the basis of the materials for which statistics are available. Production of pesticidal chemicals themselves was lower in 1957.

A recent review of the market for solvents for pesticide formulation indicated that 1958 consumption probably was 25 to 30 million gallons, about 10% higher than in 1957. During the last six to eight years the larger scale growers of the Mississippi Delta, Texas and California have tended toward liquid sprays while smaller farmers in the Southeast (particularly in hilly sections) continue to use dusts.

Aromatics (xylene type and heavy aromatic naphtha type) comprise the larger share of solvents for pesticide emulsions. Aliphatic petroleum fractions often require an alcohol or ketone coupling agent to bring about complete solution.

Record Sulphur Cargo Leaves for Canada

GALVESTON, TEXAS—Texas Gulf Sulphur Co. has completed the loading of the German steamship "Anna Katrin Fritzen." Destined for Eastern Canada the ship is carrying a 15,000 ton record cargo of sulphur. Texas Gulf's Galveston manager, R. L. McDaniel, stated the shipment is en route to Canadian Industries, Ltd., Sorel, P.Q., Canada. The cargo of sulphur consists of bulk sulphur mined at Texas Gulf's coastal mines. According to port authorities the previous record of sulphur shipped amounted to 11,300 tons in September, 1940.

LUMMUS PROMOTES TWO

NEW YORK—The Lummus Co., engineer and constructor, has announced the election of C. Frank Corbin as comptroller and Richard J. Hallinan as secretary of the firm.

FIRE ANT

(Continued from page 1)

people," Mr. Fancher added. "Earlier fears of excessive wildlife losses that were expressed by representatives of some conservation groups and by other interested agencies, and individuals have not materialized."

The Gulfport laboratory's activities cover an 11 state area—Oklahoma, Texas, Arkansas, Louisiana, Tennessee, Mississippi, Alabama, Florida, Georgia, North Carolina and South Carolina.

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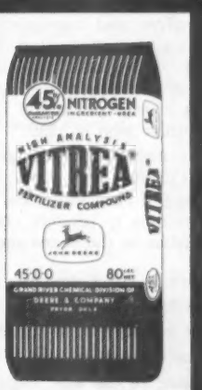

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The regional circulation of this issue is concentrated in the Midwestern states.

BEFORE NATIONAL AUDIENCE . . .

New Kind of Fertilizer 'Broadcast' Gives Public Better View of Plant Food Picture

THAT FERTILIZER use is responsible for much of the high standard of living in the U.S. was pointed out to the public in a recent program of the "National Farm and Home Hour." Taking part in this enlightening broadcast were Dr. Russell Coleman, executive vice president of the National Plant Food Institute, Washington, D.C.; Louis H. Wilson, director of information, NPFI; Dr. Samuel Tisdale, NPFI regional director, Atlanta, Ga.; Dr. Richard Bahme, NPFI regional director, San Francisco; and Zenas H. Beers, NPFI regional director, Chicago.

The points they brought out in their broadcast are exactly of the type the public needs to know. Too many good citizens are blaming fertilizers as being the sole culprits in causing agricultural surpluses. Actually, this is not the case at all.

Dr. Russell Coleman brought out these points very well in his portion of the broadcast. Louis Wilson observed that "some people *are* asking why we should be using more fertilizer today when we already have an over-abundance of food" and asked Dr. Coleman to comment on this phase.

"One of the principal reasons America is a 'have' rather than a 'have-not' nation, is that farmers have made good use of scientific know-how in their work as food producers," Dr. Coleman replied. "The superabundance we enjoy in this country results from farmers' ability to produce more food from every acre with a smaller labor force than ever before."

Asked then what part commercial fertilizer has played in this farming revolution, Dr. Coleman went on: "Commercial fertilizer accounts for at least 25% of our food supply. True enough we are producing about 5% too much. But think what would happen to the food market if no commercial fertilizers were used and our food supply were 20% short!"

Housewives and consumers are the principal beneficiaries of fertilizer use, the NPFI executive continued. "If farmers used the same kinds and amounts of fertilizer today as they did in 1940, American housewives would be paying $2 billion more for their food in 1959!"

As the nationally-broadcast interview continued, Dr. Coleman was asked: "We all know that our acreage of cropland is not getting any larger, will we be able to produce enough for our growing population in the years ahead?"

Here is Dr. Coleman's reply: "This nation is fortunate in having an adequate supply of commercial fertilizers to substitute for our dwindling land frontiers. In fact, according to the U.S. Department of Agriculture, one ton of plant food has the same crop-producing power as has ten acres of land. So, the 6 million tons of plant food used today are, in fact, substituting for 60 million acres. We will need to continue to rely on plant food to substitute for our declining crop acreage."

Conversations such as the above, heard by a wide segment of the American public, should stir people to see the value of fertilizers in a brand new light. Many, we know, still connote "fertilizer" with the compost heap, and think the plant food industry is still only a sort of scavenger business. But when authorities of the stature of Dr. Coleman speak in terms of millions of tons of plant food consumed each year, it must give the listeners an entirely new perspective on the size and importance of the industry.

Naturally, a large portion of the "Farm and Home Hour" audience comprises farmers, who also need constant reminders of the benefits of fertilizers. District managers handled this portion of the program very well in pointing out additional facts.

Dr. Tisdale commented as follows: "The first stumbling block to better crop yields and bigger farm income in the Southeast is low soil fertility. When soil acidity and low fertility are corrected, yields in the South can equal those in any section of the country. Lime and fertilizer used in adequate amounts will overcome these drawbacks.

"The best way to determine the lime and fertilizer needs for the individual farm is to have a soil test made. All Southeastern states have soil-testing laboratories. By following their recommendations, Southeastern farmers can realize the improved income that results from high crop yields and lower unit production costs."

Dr. Bahme pointed out some of the advantages of fertilizer use in the Western states where he operates. He told the national audience that crop responses to fertilizers in the Western states have been excellent. "University of California experiments show rice yields in the Sacramento Valley nearly doubled when 90 lb. nitrogen were applied to the acre," he said. "This means a six-fold increase in profit from fertilizer.

"Or we can look at alfalfa production in Arizona. Increased use of fertilizer not only produced more alfalfa, but also reduced the water required per ton. An application of 300 lb. phosphate an acre, as compared to only 200 lb., resulted in the production of 6.5 more tons of alfalfa per acre, with 3.4 fewer inches of water needed per ton.

"In Colorado, application of $30 worth of commercial fertilizer an acre on irrigated corn produced a profit per acre of $94.10 compared to only $7 without fertilizer—more than a twelve-fold increase. How are these large increases explained? The answer is that 'hidden hunger' is corrected. The true production potential of a crop is realized when high soil fertility is maintained and 'hidden hunger' is eliminated."

Mr. Beers emphasized the profit potentials existing in the Midwestern states. He declared that the productive capacity of Midwestern soils is much greater than most farmers really believe. "For instance, in one Midwestern county, corn yields now average about 60 bu. an acre compared to more than 100 bu. that are possible with just reasonably good management.

"Farming up to this minimum potential can mean cutting the cost of a bushel of corn from about $1.00 a bushel at the present yields, and reducing costs to about 78¢ at the higher yield levels per acre. This means increasing per acre profits by more than $25.

"The purpose of our crop yield potential program is not to add to the surplus but to show farmers that they can improve their incomes even though lower prices prevail."

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CROPLIFE is a controlled circulation journal published weekly. Weekly distribution of each issue is made to the fertilizer manufacturers, pesticide formulators and basic chemical manufacturers. In addition, the dealer-distributor-farm adviser segment of the agricultural chemical industry is covered on a regional (crop-area) basis with a mailing schedule which covers consecutively, one each week, four geographic regions (Northeast, South, Midwest and West) of the U.S. with one of four regional dealer issues. To those not eligible for this controlled distribution Croplife subscription rate is $5 for one year ($8 a year outside the U.S.). Single copy price, 25¢.

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Aug. 18-19—Annual Alabama Fertilizer Conference, Alabama Polytechnic Institute, Auburn, Ala.

Sept. 30-Oct. 1—Fourth Southeastern Fertilizer Conference, Atlanta Biltmore Hotel, Atlanta, Ga.

Meeting Memos listed above are being listed in this department this week for the first time.

June 4—Executive committee meeting, fertilizer section, National Safety Council, Hotel Roanoke, Roanoke, Va.

June 9-10—Annual Convention of the Alabama Seedsmen Assn., Houston Hotel, Dothan, Ala.; Raymond Shreve, Andalusia, Ala., secretary.

June 9-10—Seventeenth Annual Convention of the Association of Southern Feed and Fertilizer Control Officials, Velda Rose Motel, Hot Springs, Ark.; Maurice Rowe, Virginia Department of Agriculture, 1122 State Office Bldg., Richmond 19, Va.

June 9-11—Pilot plant demonstration on recent developments in fertilizer production technology. Muscle Shoals laboratories, Sheffield, Ala.

June 11-13—87th annual meeting, Manufacturing Chemists' Assn., The Greenbrier, White Sulphur Springs, W.Va., John L. Gillis, vice president of Monsanto Chemical Co., program chairman.

June 14-17—North central branch, American Society of Agronomy, Kansas State University, Manhattan, Kansas.

June 14-17—National Plant Food Institute, Annual Convention, the Greenbrier, White Sulphur Springs, W. Va.

June 15—Northeast Industry Advisory Committee, The Greenbrier, White Sulphur Springs, W. Va.

June 15-18—Western Society of Soil Science, University of California, Davis, Cal.

June 17-19—Northeast Branch American Society of Agronomy, University of Delaware, Newark, Del.

June 23-25—Pacific Branch, Entomological Society of America, 43rd annual meeting, El Dorado Hotel, Sacramento, Cal. Dr. Leslie M. Smith, University of California, Davis, branch chairman.

June 27—Del-Mar-Va Peninsula Fertilizer Assn., Ocean City, Md.

June 29-30 Fertilizer Industry Conference, University of Illinois, Urbana, Ill.

June 29-30—Seventh Annual California Fertilizer Conference, University of California campus, Davis, Cal. J. H. Nelson and Earl R. Mog, co-chairmen.

July 1—Western Research and Education Committee, El Mirador Hotel, Sacramento, Cal.

July 7-9—Regional Fertilizer Conference, co-sponsored by the Pacific Northwest Plant Food Assn. and state colleges and universities in the area, Winthrop Hotel, Tacoma, Wash.

July 15-17—Southwestern Fertilizer & Grade Meeting, Galvez Hotel, Galveston, Texas.

July 29—Annual Kentucky Fertilizer Conference, Guignol Theater, University of Kentucky campus, Lexington, Ky.

July 31—Agronomy Field Day, University of California, Davis, Cal.

Aug. 3-7—Gordon Research Conference on biochemistry in agriculture, Kimball Union Academy, Meriden, N.H.

Aug. 18-22—Annual Convention of the Canadian Fertilizer Assn., Bigwin Inn, Lake of Bays, Ontario.

Aug. 26-28—Soil Conservation Society of America, 14th Annual Meeting, Rapid City, S.D.

Aug. 30-Sept. 3—American Institute of Biological Sciences annual meeting, Pennsylvania State University, University Park, Pa.

Sept. 24-25 — Annual North-Eastern Fertilizer Conference, NPFI, Biltmore Hotel, New York, N.Y.

Oct. 13-14—Western Agricultural Chemicals Assn., fall meeting, Villa Motel, San Mateo, Cal., C. O. Barnard, executive secretary.

Oct. 14-16—Pacific Northwest Plant Food Assn. Annual Convention, Chinook Hotel, Yakima, Wash.

Oct. 21-23 — National Agricultural Chemicals Assn., 26th annual meeting, French Lick-Sheraton Hotel, French Lick, Ind., Lea S. Hitchner, executive secretary.

Oct. 27—Seventh Annual Grassland Farming Conference, Extension Service, Rutgers University College of Agriculture, New Brunswick, N.J.

Nov. 4-6—Fertilizer Industry Round Table, Mayflower Hotel, Washington, D.C. Dr. Vincent Sauchelli, National Plant Food Institute, chairman.

Nov. 9-11 — California Fertilizer Assn., 36th annual convention, Fairmont Hotel, San Francisco.

Nov. 16-20 — National Aviation Trades Assn., 20th annual convention, New Orleans, La.

Dec. 7-10—Central Canada and North Central Weed Control Conferences, Royal Alexandra Hotel, Winnipeg, Manitoba, Can.

Dec. 9-11—International Crop Protection and Pest Control Exhibition, Seymour Hall, St. Marylebone, London, England.

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Monsanto Personnel Receive Awards for Research Work

ST. LOUIS — Seven Monsanto Chemical Co. scientists were recipients of the inorganic chemicals division Gaston DuBois group award for research accomplishment during 1958.

The group received the honor for their contributions in the development of a process for the manufacture of non-caking, hard prill ammonium nitrate fertilizer.

The recipients were Dr. E. J. Griffith, Dr. J. G. Stites, Dr. R. F. McFarlin, J. E. Lyon, L. E. Frank, C. D. Shallenberger and F. J. LeClair.

An individual Gaston DuBois award went to Melvin C. Thompson for research sales service in agricultural chemicals.

DDT Contract

NEW YORK—Montrose Chemical Corporation of California has been awarded a supply contract by UNICEF for some 4 million lb. of 75% wettable DDT. The award approximates $1,250,000. Montrose of California is jointly owned by Stauffer Chemical Co. and Montrose Chemical Co.

Classified Ads

Classified advertisements accepted until Tuesday each week for the issue of the following Monday.

Rates: 15¢ per word; minimum charge $2.25. Situations wanted, 10¢ a word; $1.50 minimum. Count six words of signature, whether for direct reply or keyed care this office. If advertisement is keyed, care of this office, 20¢ per insertion additional charged for forwarding replies. Commercial advertising not accepted in classified advertising department. Display advertising accepted for insertion at minimum rate of $11 per column inch.

All Want Ads cash with order.

MISCELLANEOUS

BRUSH AND WEED KILLER

KILL SUBMERSED water weeds which foul up motor propellers, tangle fishing gear and choke irrigation ditches with R-H Granular Weed Rhap. Inexpensive, easy to use, sure results. For details write Reasor-Hill Corporation, Box 36CL, Jacksonville, Ark.

KILL BRUSH at low cost with amazing R-H Brush Rhap. Will not injure grasses, grains, cattle, or other animals. See your dealer, or write Reasor-Hill Corporation, Box 36CL, Jacksonville, Ark.

Weed, Insect Controls on Small Fruits Day Program

WOOSTER, OHIO—Weed control, selection of varieties and control of insects will be special topics at the 6th annual Small Fruits Day at the Ohio Agricultural Experiment Station, Wooster on June 18.

By that time the strawberries in the experimental plots should be at their peak, providing the season is a normal one. Inspection of the dozen or so varieties is a part of the program.

New materials are coming onto the farm chemical scene and some of the newest weed control methods being developed at the station will be discussed by Dr. E. K. Alban of the department of horticulture.

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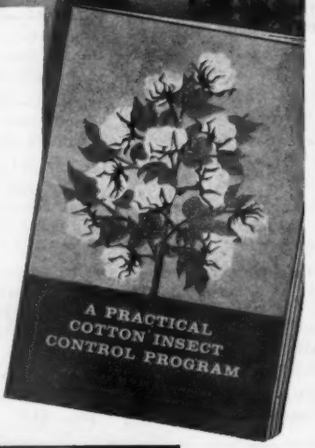
PROMOTING BETTER INSECTICIDE USAGE

Based on years of research and field experience, charts and booklets are now available for various cotton localities outlining a planned, practical cotton insect control program. This program, using toxaphene and toxaphene-DDT, helps the farmer get the most from his insecticide dollar, increases confidence in insecticides and results in improved sales for dealers. These charts and other materials outlining the program are available for major cotton producing areas directly from Hercules.



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